DIGESTIVE DISEASE DAYS

2022

PROGRAMMA

16 en 17 maart

DDD Online

NVGE
NEDERLANDSE VERENIGING
VOOR GASTRO-ENTEROLOGIE

DIGESTIVE DISEASE DAYS - DDD

Het programma van de DDD Online werd samengesteld met inbreng van de volgende verenigingen en secties:

Nederlandse Vereniging voor Gastro-enterologie
Nederlandse Vereniging voor Gastrointestinale Chirurgie
Nederlandse Vereniging voor Hepatologie
Nederlandse Vereniging van Maag-Darm-Leverartsen

Secties:
Sectie Experimentele Gastroenterologie
Sectie Gastrointestinale Endoscopie
Sectie Neurogastroenterologie en Motiliteit
Sectie Gastrointestinale Oncologie
Sectie Inflammatoire Darmziekten IBD
Sectie Kinder-MDL
Verpleegkundigen & Verzorgenden Nederland – MDL
PhD Netwerk

INHOUDSOPGAVE **pag.**

Woensdag 16 maart 2022

INHOUDSOPGAVE **pag.**

Donderdag 17 maart 2022

WOENSDAG 16 MAART 2022

Symposium – Update IBD richtlijn: zwangerschap, dieet en voedingssupplementen, psychosociale zorg

Voorzitters: *S.J.H. van Erp en M.W.M.D. Lutgens*

08.30	Zwangerschap en medicatie *Dr. B. Jharap, MDL-arts, Meander MC*
08.45	Discussie
08.50	IBD en voeding/supplementen *A. van Dijk, diëtist, UMC Utrecht en C. Bijl, diëtist, Amsterdam UMC*
09.05	Discussie
09.10	IBD en psychosociale zorg *R. Theeuwen, verpleegkundig specialist IBD, LUMC* *M. Scherpenzeel, directeur Crohn & Colitis NL*
09.25	Discussie
10.30	Einde van dit programmaonderdeel.

Abstractsessie - Sectie Gastro-intestinale Oncologie I **vanuit de Virtual studio**

Voorzitters: *C.M.C. le Clercq en V.M.C.W. Spaander*

08.30 CT-colonography in Fecal Immunochemical Test Positive Patients in a Colorectal Cancer Screening Program – Yield and Incidence of Interval Carcinomas (p. 42)

S. Moen[1], F.E. Marijnissen[1], J.S. Terhaar Sive Droste[2], W.H. De Vos tot Nederveen Cappel[3], M.B.W. Spanier[4], J.F. Huisman[3], E. Dekker[5], J. Stoker[6], E.J. Kuipers[1], M.G.J. Thomeer[7], M.C.W. Spaander[1], [1]Dept. of Gastroenterology and Hepatology, Erasmus MC University Medical Center, Rotterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Hospital, 's Hertogenbosch, Nederland. [3]Dept. of Gastroenterology and Hepatology, Isala Hospital, Zwolle, Nederland. [4]Dept. of Gastroenterology and Hepatology, Rijnstate Hospital, Arnhem, Nederland. [5]Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Center location AMC, Amsterdam, Nederland. [6]Dept. of Radiology and Nuclear Medicine, Amsterdam University Medical Centers, Amsterdam, Nederland. [7]Dept. of Radiology, Erasmus MC University Medical Center, Rotterdam, Nederland.

08.36 Proximal Serrated Polyp Detection Rate and Interval Post-Colonoscopy Colorectal Cancer Risk (p.43)

D.E.F.W.M. Van Toledo[1], J.E.G. IJspeert[1], P.M.M. Bossuyt[2], M.E. Van Leerdam[3], M. Van Der Vlugt[1], I. Lansdorp-Vogelaar[4], M.C.W. Spaander[5], E. Dekker[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland. [2]Dept. of Epidemiology and Biostatistics, Amsterdam UMC, location AMC, Amsterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Netherlands Cancer Institute-Antoni Van Leeuwenhoek, Amsterdam, Nederland. [4]Dept. of Public Health, Erasmus University Medical Center, Rotterdam, Nederland. [5]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland.

08.42 Advanced-stage CRC incidence patterns related to the phased implementation of the CRC screening program in the Netherlands (P. 44)

E.C.H. Breekveldt[1], E. Toes-Zoutendijk[1], M.C.W. Spaander[2], L. de Jonge[1], H.J. van de Schootbrugge-Vandermeer[1], A.J. van Vuuren[2], F.J. van Kemenade[3], C. Ramakers[4], E. Dekker[5], I.D. Nagtegaal[6], M.E. van Leerdam[7], I. Lansdorp-Vogelaar[1], [1]Dept. of Public Health, Erasmus MC, Rotterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Nederland. [3]Dept. of Pathology, Erasmus MC, Rotterdam, Nederland. [4]Dept. of Clinical Chemistry, Erasmus University Medical Center, Rotterdam, Nederland. [5]Dept. of Gastroenterology and Hepatology, Amsterdam UMC - Locatie AMC, Amsterdam, Nederland. [6]Dept. of Pathology, Radboud UMC, Nijmegen, Nederland. [7]Dept. of Gastroenterology and Hepatology, Netherlands Cancer Institute - Antoni van Leeuwenhoek Ziekenhuis, Amsterdam, Nederland.

08.48 Adenoma detection rate and risk of interval post-colonoscopy colorectal cancer in FIT-based screening (p. 45)

P.H.A. Wisse[1], M.C.W. Spaander[1], N.S. Erler[2], S.Y. de Boer[3], B. den Hartog[4], M. Oudkerk Pool[4], J.S. Terhaar sive Drose[4], C. Verveer[4], G.A. Meijer[5], I. Lansdorp-Vogelaar[6], E.J. Kuipers[1], E. Dekker[7], [1]Dept. of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Nederland. [2]Dept. of Biostatistics, Erasmus MC, Rotterdam, Nederland. [3]Dept. of Gastroenterology, Bevolkingsonderzoek Nederland, Utrecht, Nederland. [4]Dept. of Gastroenterology and Hepatology, Bevolkingsonderzoek Nederland, Utrecht, Nederland. [5]Dept. of Pathology, Nederlands Kanker Instituut, Amsterdam, Nederland. [6]Dept. of Public Health, Erasmus MC, Rotterdam, Nederland. [7]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland.

08.54 Stool-based testing to reduce the number of unnecessary surveillance colonoscopies: the MOCCAS study (p.46)

B. Carvalho[1], W. de Klaver[2], F. van Wifferen[3], M.C.J. van Lanschot[2], A.J.P. van de Wetering[4], Q.E.W. van der Zander[4], G.M. Lemmens[1], A. Bolijn[1], M. Tijssen[1], P. Delis-van Diemen[1], N. Buekers[5], K. Daenen[5], J. van der Meer[5], P.G. van Mulligen[1], B. Hijmans[1], S. de Ridder[1], R.W.M. van der Hulst[6], J.P.H. Kuyvenhoven[6], A.M. van Berkel[7], A.C.T.M. Depla[8], M.E. van Leerdam[9], J.M. Jansen[10], C.A. Wientjes[10], J.W.A. Straathof[11], E.T.P. Keulen[12], D. Ramsoekh[13], L.M.G. Moons[14], B.M. Berger[15], G.P. Lidgard[15], M. Zacherl[16], A.A.M. Masclee[4], M.J.E. Greuter[3], V.M.H. Coupé[3], M. van Engeland[5], E. Dekker[2], G.A. Meijer[1], [1]Dept. of Pathology, Netherlands Cancer Institute, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland. [3]Dept. of Epidemiology and Data Science, Amsterdam UMC, location VUmc, Amsterdam, Nederland. [4]Dept. of Gastroenterology and Hepatology, Maastricht Universitair Medisch Centrum Plus, Maastricht, Nederland. [5]Dept. of Pathology, Maastricht Universitair Medisch Centrum Plus, Maastricht, Nederland. [6]Dept. of Gastroenterology and Hepatology, Spaarne Gasthuis, Haarlem, Nederland. [7]Dept. of Gastroenterology and Hepatology, Noordwest Ziekenhuisgroep, Alkmaar, Nederland. [8]Dept. of Gastroenterology and Hepatology, Slotervaartziekenhuis, Amsterdam, Nederland. [9]Dept. of Gastroenterology and Hepatology, Netherlands Cancer Institute, Amsterdam, Nederland. [10]Dept. of Gastroenterology and Hepatology, Onze Lieve Vrouwe Gasthuis, Amsterdam, Nederland. [11]Dept. of Gastroenterology and Hepatology, Maxima Medisch Centrum, Veldhoven, Nederland. [12]Dept. of Gastroenterology and Hepatology, Zuyderland Medisch Centrum, Sittard-Geleen, Nederland. [13]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location VUmc, Amsterdam, Nederland. [14]Dept. of Gastroenterology and Hepatology, Universitair Medisch Centrum Utrecht, Utrecht, Nederland. [15]Exact Sciences Corporation, Madison, Wisconsin, Verenigde Staten. [16]Sysmex Europe, Norderstedt, Schleswig-Holstein, Duitsland.

09.00 Pks+ E. coli status in stool as risk marker for improving colorectal cancer early detection (p. 47)

W. de Klaver[1], M. de Wit[2], A. Bolijn[2], M. Tijssen[2], P. Delis-van Diemen[2], G.M. Lemmens[2], M.C.W. Spaander[3], E. Dekker[1], V.M.H. Coupé[4], R. van Boxtel[5], H. . Clevers[6], B. Carvalho[2], G.A. Meijer[2], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland. [2]Dept. of Pathology, Netherlands Cancer Institute, Amsterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Erasmus Medisch Centrum, Rotterdam, Nederland. [4]Dept. of Epidemiology and Data Science, Amsterdam UMC, location VUmc, Amsterdam, Nederland. [5]Dept. Of Molecular Cancer Research, Prinses Maxima Centrum, Utrecht, Nederland. [6]Dept. Of Molecular Cancer Research, Hubrecht Institute, Utrecht, Nederland.

09.06 Inclusion of Advanced Serrated Polyps Increases the Yield of Colorectal Cancer Screening Based on Fecal Immunochemical Testing (p. 48)

D.E.F.W.M. Van Toledo[1], E.C.H. Breekveldt[2], J.E.G. IJspeert[1], L. De Jonge[2], H.J. Van De Schootbrugge-Vandemeer[2], A.J. Van Vuuren [3], F.J. Van Kemenade [4], C. Ramakers[5], I.D. Nagtegaal[6], M.E. Van Leerdam[7], M.C.W. Spaander[3], I. Lansdorp-Vogelaar[2], E. Toes-Zoutendijk[2], E. Dekker[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland. [2]Dept. of Public Health, Erasmus University Medical Center, Rotterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland. [4]Dept. of Pathology, Erasmus University Medical Center, Rotterdam, Nederland. [5]Dept. of Clinical Chemistry, Erasmus University Medical Center, Rotterdam, Nederland. [6]Dept. of Pathology, Radboud University Medical Center, Nijmegen, Nederland. [7]Dept. of Gastroenterology, Netherlands Cancer Institute-Antoni Van Leeuwenhoek, Amsterdam, Nederland.

09.12 Acute toxicity of short course radiotherapy with prolonged interval to total mesorectal excision for rectal cancer (p. 49)

M.E. Verweij[1], S. Hoendervangers[2], C.M. Von Hebel[1], A. Pronk[3], A.H.W. Schiphorst[3], E.C.J. Consten[4], E.G.G. Verdaasdonk[2], T. Rozema[5], H.M. Verkooijen[1], W.M.U. Grevenstein[6], M.P.W. Intven[1], [1]Dept. of Radiotherapy, UMC Utrecht, Utrecht, Nederland. [2]Dept. of Surgery, Jeroen Bosch Ziekenhuis, Den Bosch, Nederland. [3]Dept. of Surgery, Diakonessenhuis, Utrecht, Nederland. [4]Dept. of Surgery, Meander MC, Amersfoort, Nederland. [5]Dept. of Radiotherapy, Verbeeten Instituut, Tilburg, Nederland. [6]Dept. of Surgery, UMC Utrecht, Utrecht, Nederland.

09.18 The natural course of untreated neoplasia in Barrett's Esophagus - a case-series (p. 50)

E.P.D. Verheij[1], S.N. Van Munster[1], C.C. Cotton[2], B.L.A.M. Weusten[3], L. Alvarez Herrero[4], A. Alkhalaf[5], B.E. . Schenk [5], E.J. Schoon[6], W. Curvers[6], A.D. Koch[7], P.J.F. De Jonge[7], T.J. Tang[8], W.B. Nagengast[9], J. Westerhof[9], M.H.M.G. Houben[10], N.J. Shaheen[2], J.J.G.H.M. Bergman[1], R.E. Pouw[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Centers, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, University of North Carolina, Chapel Hill, Verenigde Staten. [3]Dept. of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Nederland. [4]Dept. of Gastroenterology and Hepatology, St. Antonius Hospital, Nieuwegein, Nederland. [5]Dept. of Gastroenterology and Hepatology, Isala Hospital, Zwolle, Nederland. [6]Dept. of Gastroenterology and Hepatology, Catharina Hospital, Eindhoven, Nederland. [7]Dept. of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Nederland. [8]Dept. of Gastroenterology and Hepatology, IJsselland Hospital, Capelle aan den Ijssel, Nederland. [9]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [10]Dept. of Gastroenterology and Hepatology, Haga Hospital, Den Haag, Nederland.

09.24 Risk of head, neck and upper gastrointestinal cancers in FIT-positive screenees participating in a colorectal cancer screening program (p. 51)

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WOENSDAG 16 MAART 2022

Break-out sessie Kinder MDL

09.30 De grote oversteek
J. Pruijsen, fellow kinder-MDL, UMC Groningen

10.00 Einde van de sessie

Break-out sessie

09.30 Checkpoint Inhibitor induced colitis
Dr. M.C. Visschedijk, MDL-arts, UMC Groningen

10.00 Einde van de sessie

Abstractsessie - Sectie Inflammatoire Darmziekten **vanuit de Virtual studio**

Voorzitters: *B. Oldenburg en M.G.V.M. Russel*

10.03 Anti-TNF withdrawal in patients with Inflammatory Bowel Disease in endoscopic remission: a prospective study (p. 52)

R. Mahmoud[1], E.H.J. Savelkoul[2], W. Mares[3], R. Goetgebuer[4], B. Witteman[3], D. de Koning[5], I.M. Minderhoud[6], S.A.C. van Tuyl[7], P.G.A. van Boeckel[8], N. Mahmmod[8], M.W.M.D. Lutgens[9], C. Horjus[10], T. Römkens[11], D. Akol-Simsek[12], J.M. Jansen[13], J.-F. Colombel[14], F. Hoentjen[15], B. Jharap[16], B. Oldenburg[1], [1]Dept. of Gastroenterology and Hepatology, UMC Utrecht, Utrecht, Nederland. [2]Dept. of Gastroenterology and Hepatology, Radboudumc, Nijmegen, Nederland. [3]Dept. of Gastroenterology and Hepatology, Ziekenhuis Gelderse Vallei, Ede, Nederland. [4]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [5]Dept. of Gastroenterology and Hepatology, Gelre Ziekenhuis, Apeldoorn, Nederland. [6]Dept. of Gastroenterology and Hepatology, Tergooi MC, Hilversum, Nederland. [7]Dept. of Gastroenterology and Hepatology, Diakonessenhuis, Utrecht, Nederland. [8]Dept. of Gastroenterology and Hepatology, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [9]Dept. of Gastroenterology and Hepatology, Elisabeth-TweeSteden Ziekenhuis, Tilburg, Nederland. [10]Dept. of Gastroenterology and Hepatology, Rijnstate Ziekenhuis, Arnhem, Nederland. [11]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Ziekenhuis, 's-Hertogenbosch, Nederland. [12]Dept. of Gastroenterology and Hepatology, Medisch Centrum de Veluwe, Apeldoorn, Nederland. [13]Dept. of Gastroenterology and Hepatology, OLVG, Amsterdam, Nederland. [14]Dept. of Gastroenterology and Hepatology, Icahn School of Medicine at Mount Sinai, New York, NY, Verenigde Staten. [15]Dept. of Gastroenterology and Hepatology, University of Alberta, Edmonton, AB, Canada. [16]Dept. of Gastroenterology and Hepatology, Meander Medisch Centrum, Amersfoort, Nederland.

10.09 Effectiveness and Safety of Tofacitinib versus Vedolizumab in Patients with Ulcerative Colitis; a Nationwide, ICC Registry study (p. 53)

T.S. Straatmijer[1], M.C. Visschedijk[2], F. Hoentjen[3], A.C. de Vries[4], A. Bodelier[5], K.H.N. de Boer[6], G. Dijkstra[2], E.A.M. Festen[2], C. Horjus[7], J.M. Jansen[8], B. Jharap[9], W. Mares[10], B. Oldenburg[11], C.Y. Ponsioen[6], T. Romkens[12], N. Srivastava[13], M.P.J.A. van der Voorn[14], R. West[15], C.J. van der Woude[4], M.D.J. Wolvers[16], M. Pierik[17], A.E. van der Meulen[18], M. Duijvestein[19], [1]Dept. of Gastroenterology, Initiative on Crohn and Colitis, Amsterdam, Nederland. [2]Dept. of Gastroenterology, University Medical Centre Groningen, Groningen, Nederland. [3]Dept. of Gastroenterology, University of Alberta, Edmonton, Nederland. [4]Dept. of Gastroenterology, Erasmus Medical Centre, Rotterdam, Nederland. [5]Dept. of Gastroenterology, Amphia Hospital, Breda, Nederland. [6]Dept. of Gastroenterology, Amsterdam University Medical Centre, Amsterdam, Nederland. [7]Dept. of Gastroenterology, Rijnstate, Arnhem, Nederland. [8]Dept. of Gastroenterology, OLVG, Amsterdam, Nederland. [9]Dept. of Gastroenterology, Meander Medical Centre, Amersfoort, Nederland. [10]Dept. of Gastroenterology, Ziekenhuis Geldersche Vallei, Ede, Nederland. [11]Dept. of Gastroenterology, University Medical Centra Utrecht, Utrecht, Nederland. [12]Dept. of Gastroenterology, Jeroen Bosch Hospital, 's-Hertogenbosch, Nederland. [13]Dept. of Gastroenterology, Haaglanden Medical Centre, Den Haag, Nederland. [14]Dept. of Gastroenterology, Haga Hospital, Den Haag, Nederland. [15]Dept. of Gastroenterology, Franciscus Gasthuis&Vlietland, Rotterdam, Nederland. [16]Dept. of Epidemiology, Amsterdam University Medical Centre, Amsterdam, Nederland. [17]Dept. of Gastroenterology, Maastricht University Medical Centre, Maastricht, Nederland. [18]Dept. of Gastroenterology, Leiden University Medical Centre, Leiden, Nederland. [19]Dept. of Gastroenterology, Radboud University Medical Centre, Nijmegen, Nederland.

10.15 Withdrawal of thiopurines in Inflammatory Bowel Disease patients in stable remission: a prospective, multicenter cohort study (p. 54)

E.H.J. Savelkoul[1], R. Mahmoud[2], D.J. de Jong[1], W.A. van Dop[1], T.E.H. Römkens[3], L.H.C. Nissen[3], N. Mahmmod[4], P.G.A. van Boeckel[4], M.W.M.D. Lutgens[5], W.G.M. Mares[6], L.S.M. Epping[7], I.M. Minderhoud[8], J.M. Jansen[9], I.A.M. Gisbertz[10], P.J. Boekema[11], D. de Koning[12], C.S. Horjus[13], B. Jharap[14], B. Oldenburg[2], F. Hoentjen[15], [1]Dept. of Gastroenterology and Hepatology, Radboudumc, Nijmegen, Nederland. [2]Dept. of Gastroenterology and Hepatology, UMC Utrecht, Utrecht, Nederland. [3]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Ziekenhuis, 's-Hertogenbosch, Nederland. [4]Dept. of Gastroenterology and Hepatology, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [5]Dept. of Gastroenterology and Hepatology, Elisabeth-TweeSteden Ziekenhuis, Tilburg, Nederland. [6]Dept. of Gastroenterology and Hepatology, Ziekenhuis Gelderse Vallei, Ede, Nederland. [7]Dept. of Gastroenterology and Hepatology, Maasziekenhuis Pantein, Boxmeer, Nederland. [8]Dept. of Gastroenterology and Hepatology, Tergooi MC, Hilversum, Nederland. [9]Dept. of Gastroenterology and Hepatology, Onze Lieve Vrouwe Gasthuis (OLVG), Amsterdam, Nederland. [10]Dept. of Gastroenterology and Hepatology, Bernhoven, Uden, Nederland. [11]Dept. of Gastroenterology and Hepatology, Maxima Medisch Centrum, Eindhoven, Nederland. [12]Dept. of Gastroenterology and Hepatology, Gelre Ziekenhuis, Apeldoorn, Nederland. [13]Dept. of Gastroenterology and Hepatology, Rijnstate, Arnhem, Nederland. [14]Dept. of Gastroenterology and Hepatology, Meander Medisch Centrum, Amersfoort, Nederland. [15]Dept. of Medicine, University of Alberta, Edmonton, Canada.

10.21 Ustekinumab Trough Concentrations associated with Clinical and Biochemical Outcomes in Patients With Crohn's Disease (p. 55)

T.S. Straatmeijer[1], V.B.C. Biemans[2], D.J.A.R. Moes[3], F. Hoentjen[4], R. ter Heine[5], P.W.J. Maljaars[6], R. Theeuwen[7], M. Pierik[8], M. Duijvestein[9], A.E. van der Meulen[6], [1]Dept. of Gastroenterology, Initiative on Crohn and Colitis, Amsterdam, Nederland. [2]Dept. of Gastroenterology, Initiative on Crohn's and Colitis, Nijmegen, Nederland. [3]Dept. of Clinical Pharmacy and Toxicology, Leiden University Medical Center, Leiden, Nederland. [4]Dept. of Gastroenterology, University of Alberta, Edmonton, Nederland. [5]Dept. of Clinical Pharmacy and Toxicology, Radboud University Medical Centre, Nijmegen, Nederland. [6]Dept. of Gastroenterology, Leiden University Medical Centre, Leiden, Nederland. [7]Dept. of Gastroenterology, Leiden University Medical Center, Leiden, Nederland. [8]Dept. of Gastroenterology, Maastricht University Medical Centre, Maastricht, Nederland. [9]Dept. of Gastroenterology, Radboud University Medical Centre, Nijmegen, Nederland.

10.27 Effectiveness and safety of thioguanine in thiopurine-naïve Inflammatory Bowel Disease patients (p. 56)

F. Crouwel[1], A.B. Bayoumy[2], C.J.J. Mulder[2], J.H.C. Peters[3], P.J. Boekema[4], L.J.J. Derijks[5], S.Y. de Boer[6], P.C. van de Meeberg[6], I. Ahmad[7], H.J.C. Buiter[8], K.H.N. de Boer[2], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC locatie VUmc, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Amsterdam UMC locatie Vumc, Amsterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Rode Kruisziekenhuis, Beverwijk, Nederland. [4]Dept. of Gastroenterology and Hepatology, Maxima Medical Centre, Veldhoven, Nederland. [5]Dept. of Clinical Pharmacy, Maxima Medical Centre, Veldhoven, Nederland. [6]Dept. of Gastroenterology and Hepatology, Slingeland Hospital, Doetinchem, Nederland. [7]Dept. of Gastroenterology and Hepatology, Streekziekenhuis Koningin Beatrix, Winterswijk, Nederland. [8]Dept. of Radiology and Nuclear Medicine, Amsterdam UMC locatie Vumc, Amsterdam, Nederland.

10.33 Mindfulness-based cognitive therapy for fatigue in patients with inflammatory bowel disease: Results of a randomized controlled trial (p. 57)

Q.M. Bredero[1], J. Fleer[1], J.G. Smink[1], G. Kuiken[2], J. Potjewijd[3], M. Laroy[4], M.C. Visschedijk[2], M. Russel[5], M. van der Lugt[5], M.A.C. Meijssen[6], E.J. van der Wouden[6], G. Dijkstra[2], M.J. Schroevers[1], [1]Dept. of Health Psychology, University Medical Center Groningen, Groningen, Nederland. [2]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [3]Isala Clinics, Zwolle, Nederland. [4]Mindfulness Training Twente - Zeilen op de wind, Boekelo, Nederland. [5]Dept. of Gastroenterology and Hepatology, Medisch Spectrum Twente, Enschede, Nederland. [6]Dept. of Gastroenterology, Isala Clinics, Zwolle, Nederland.

10.39 Histological revision of high-grade dysplasia in IBD impacts the rate of advanced neoplasia recurrence: a retrospective cohort study (p. 58)

M. te Groen[1], M.E.W. Derks[1], S. Vos[2], I.D. Nagtegaal[2], C.P. Peters[3], A.C. de Vries[4], G. Dijkstra[5], T.E.H. Romkens[6], C.S. Horjus[7], K.H.N. de Boer[3], M.E. de Jong[1], B. van Ruijven[1], L.A.A.P. Derikx[1], F. Hoentjen[8], [1]Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Nederland. [2]Dept. of Pathology, Radboud University Medical Center, Nijmegen, Nederland. [3]Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Center, Amsterdam, Nederland. [4]Dept. of Gastroenterology and Hepatology, Erasmus Medical Center, Rotterdam, Nederland. [5]Dept. of Gastroenterology and Hepatology, Groningen University Medical Center, Groningen, Nederland. [6]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Hospital, Den Bosch, Nederland. [7]Dept. of Gastroenterology and Hepatology, Rijnstate Hospital, Arnhem, Nederland. [8]Dept. of Gastroenterology and Hepatology, University of Alberta, Edmonton, Canada.

10.45 External validation and consistency in time of patient segmentation based on disease acceptance and perceived control in Inflammatory Bowel Disease (p. 59)

L.W. van Erp[1], P.W.A. Thomas[2], M.J.M. Groenen[1], S. Bloem[3], M.G.V.M. Russel[4], T.E.H. Römkens[5], P.J. Wahab[1],[1]Dept. of Gastroenterology and Hepatology, Rijnstate Hospital, Arnhem, Nederland. [2]Dept. of Gastroenterology and Hepatology, Radboud University Medical Centre, Nijmegen, Nederland. [3]Center for Marketing & Supply Chain Management, Nyenrode Business University, Breukelen, Nederland. [4]Dept. of Gastroenterology and Hepatology, Medical Spectrum Twente, Enschede, Nederland. [5]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Hospital, 's-Hertogenbosch, Nederland.

10.51 Complementaire geneeskunde bij IBD

Prof. dr. B. Oldenburg, MDL-arts, UMC Utrecht

WOENSDAG 16 MAART 2022

Symposium Kinder MDL: Jong gekregen, oud gehouden **vanuit de Talkshow studio**

Voorzitters: *R. Scheenstra en W.L. van der Woerd*

10.00 Pancreatitis
Dr. F.A.J.A. Bodewes, Kinderarts-MDL, UMC Groningen
Dr. H.M. van Dullemen, MDL-arts, UMC Groningen

10.30 Darmfalen
Dr. M.M. Tabbers, kinderarts-MDL, AMC Emma Kinderziekenhuis
Dr. M.J.M. Serlie, internist-endocrinoloog, Amsterdam UMC, loc. AMC

11.00 Einde van dit programmaonderdeel.

Break-out sessie: Zwangerschap en IBD: wat weten we en hoe gaan we ermee om?

Voorzitters: *W.A. van Dop en L.A.A.P. Derikx*

11.00 Interactieve casusbespreking

11.30 Einde van de sessie

WOENSDAG 16 MAART 2022

Symposium Zorginstituut Nederland 'Zinnige Zorg Maagklachten' **vanuit de Talkshow studio**

Voorzitter: *E. Heeregrave*

Tafelgasten: *Dr. E. Heeregrave, projectleider Zinnige Zorg Zorginstituut Nederland*
Prof. dr. N. de Wit, hoogleraar huisartsgeneeskunde, divisievoorzitter Julius Centrum, UMC Utrecht
Prof. dr. D. Keszthelyi, hoogleraar MDL, hoofd gastro-enterologie Maastricht UMC+
Drs. Geert van Hoof, medisch adviseur CZ
Drs. Annemieke Horikx, apotheker KNMP

11.30 Zinnige Zorg maagklachten

11.50 Voordracht en discussie: 'Verminder onnodige diagnostiek met gastroscopieën'

12.10 Voordracht en discussie: 'Verminder overbehandeling met PPI's bij volwassenen'

12.30 Einde van dit programmaonderdeel, vanaf 14.00 uur wordt het DDD programma hervat.

Abstractsessie - Sectie Inflammatoire Darmziekten II **vanuit de Virtual studio**

Voorzitters: *C.S. Horjus en S.F.G. Jeuring*

11.30 Long term prognosis of the modified Rutgeerts score and anastomotic lesions on surgical and severe endoscopic postoperative recurrence rates in Crohn's disease patients following primary ileocolic resection (p. 60)

M.T.J. Bak[1], O. van Ruler[2], A.G.L. Bodelier[3], G. Dijkstra[4], M.J. Romberg-Camps[5], N.K.H. de Boer[6], F. Hoentjen[7], L.P.S. Stassen[8], A.E. van der Meulen-de Jong[9], R.L. West[10], C.J. van der Woude[1], A.C. de Vries[1], [1]Dept. of Gastroenterology and Hepatology, Erasmus Medical Center, Rotterdam, Nederland. [2]Dept. of Surgery, IJsselland Ziekenhuis, Cappelle aan den IJssel, Nederland. [3]Dept. of Gastroenterology and Hepatology, Amphia Hospital, Breda, Nederland. [4]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [5]Dept. of Gastroenterology and Hepatology, Zuyderland Medical Centre, Heerlen-Sittard-Geleen, Nederland. [6]Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Center, Amsterdam, Nederland. [7]Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Nederland. [8]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center, Maastricht, Nederland. [9]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland. [10]Dept. of Gastroenterology and Hepatology, Franciscus Gasthuis & Vlietland, Rotterdam, Nederland.

11.36 Use of TNF-α-antagonists and systemic steroids is associated with attenuated immunogenicity against SARS-CoV-2 in fully vaccinated patients with Inflammatory Bowel Disease (p. 61)

A.T. Otten[1], A.R. Bourgonje[1], P.P. Horinga[2], H.H. van der Meulen[2], C. van Leer-Buter[3], G. Dijkstra[2], M.C. Visschedijk[2], [1]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [2]Dept. of Gastroenterology and Hepatology, Univeristy Medical Center Groningen, Groningen, Nederland. [3]Dept. of Microbiology and Immunology , Univeristy Medical Center Groningen, Groningen, Nederland.

11.42 Bacterial oncotraits but not biofilms are associated with dysplasia in ulcerative colitis (p. 62)

C. Bruggeling[2], M. te Groen[1], D.R. Garza[2], J. Krekels[2], I.D. Nagtegaal[2], B. Dutilh[3], F. Hoentjen[4], A. Boleij[2], [1]Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Nederland. [2]Dept. of Pathology, Radboud University Medical Center, Nijmegen, Nederland. [3]Dept. of Biology, Utrecht University, Utrecht, Nederland. [4]Dept. of Gastroenterology and Hepatology, University of Alberta, Edmonton, Canada.

11.48 Mucosal microbiota modulate host intestinal immune signatures in inflammatory bowel disease (p. 63)

S. Hu[1], A.R. Bourgonje[1], L.M. Spekhorst[1], R. Gacesa[1], B.H. Jansen[1], A. Bangma[1], I. Hidding[1], E.A.M. Festen[1], H.M. van Dullemen[1], M.C. Visschedijk[1], G. Dijkstra[1], H.J.M. Harmsen[2], A. Vich Vila[1], R.K. Weersma[1], [1]Dept. of Gastroenterology and Hepatology, University of Groningen, University Medical Center Groningen, Groningen, Nederland. [2]Dept. of Medical Microbiology, University of Groningen, University Medical Center Groningen, Groningen, Nederland.

11.54 Patients with inflammatory bowel disease show IgG immune responses towards disease-associated small intestinal bacteria (p. 64)

A.R. Bourgonje[1], G. Roo-Brand[2], P. Lisotto[2], M. Sadaghian Sadabad[2], R.D. Reitsema[3], M.C. de Goffau[4], K.N. Faber[1], G. Dijkstra[1], H.J.M. Harmsen[2], [1]Dept. of Gastroenterology and Hepatology, University of Groningen, University Medical Center Groningen, Groningen, Nederland. [2]Dept. of Medical Microbiology, University of Groningen, University Medical Center

Groningen, Groningen, Nederland. [3]Dept. of Rheumatology, University of Groningen, University Medical Center Groningen, Groningen, Nederland. [4]Dept. of Vascular Medicine, Amsterdam University Medical Center, Amsterdam, Nederland.

12.00 Mucosal eosinophil abundance in non-inflamed colonic tissue predict response to vedolizumab induction therapy in inflammatory bowel disease (p. 65)

R.Y. Gabriëls[1], A.R. Bourgonje[2], K. Galinsky[3], J. Juarez[4], K.N. Faber[5], G. Kats-Ugurlu[6], G. Dijkstra[2], [1]Dept. of Gastroenterology and Interventional Endoscopy, UMCG, Groningen, Nederland. [2]Dept. of Gastroenterology and Hepatology, UMCG, Groningen, Nederland. [3]Takeda Pharmaceutical Company Ltd., -, Verenigde Staten. [4]Takeda Pharmaceutical Company Ltd., Verenigde Staten. [5]Dept. of Medical Microbiology, UMCG, Groningen, Nederland. [6]Dept. of Pathology, UMCG, Groningen, Nederland.

12.06 Microbial signature of the colon is not associated with response to vedolizumab in Crohn's disease (p. 66)

I.L. Hageman[1], V. Joustra[2], A.Y.F. . Li Yim[2], M. Davids[2], P. Henneman[3], T.B.M. Hakvoort[2], F. Probert[4], J. Satsangi[4], G.R.A.M. D'Haens[2], W. de Jonge[2], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Tytgat Institute for Liver and Intestinal research, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [3]Dept. of Clinical Genetics, Amsterdam UMC, Amsterdam, Nederland. [4]Dept. of Gastroenterology and Hepatology, Oxford University, Oxford, Verenigd Koninkrijk.

12.12 Prehabilitation strategies prior to ileocolic (re-)resection in Crohn's disease: a missed window of opportunity? (p. 67)

M.T.J. Bak[1], M.F.E. Ruiterkamp[2], J.H.C. Arkenbosch[1], L.P.S. Stassen[3], G. Dijkstra[4], M.J.E. Campmans-Kuijpers[4], M.J. Romberg-Camps[5], S. van der Marel[6], F. Hoentjen[7], K.W. van Dongen[8], R.L. West[9], N.L.U. van Meeteren[10], C.J. van der Woude[1], O. van Ruler[11], A.C. de Vries[1], [1]Dept. of Gastroenterology and Hepatology, Erasmus Medical Center, Rotterdam, Nederland. [2]Dept. of Gastroenterology, Erasmus Medical Center, Rotterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center, Maastricht, Nederland. [4]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [5]Dept. of Gastroenterology and Hepatology, Zuyderland Medical Centre, Heerlen-Sittard-Geleen, Nederland. [6]Dept. of Gastroenterology and Hepatology, Haaglanden Medical Centre, The Hague, Nederland. [7]Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Nederland. [8]Dept. of Surgery, Maasziekenhuis Pantein, Boxmeer, Nederland. [9]Dept. of Gastroenterology and Hepatology, Franciscus Gasthuis & Vlietland, Rotterdam, Nederland. [10]Dept. of Anesthesiology, Erasmus Medical Center, Rotterdam, Nederland. [11]Dept. of Surgery, IJsselland Ziekenhuis, Cappelle aan den IJssel, Nederland.

12.18 Subcutaneous administration, higher age and lower renal function are associated with intracellular methotrexate accumulation in Crohn's disease (p. 68)

M.M. van de Meeberg[1], M.L. Seinen[2], H.H. Fidder[3], M. Lin[4], B. Oldenburg[3], K.H.N. de Boer[1], G. Bouma[1], R. de Jonge[4], M. Bulatovic Calasan[5], [1]Dept. of Gastroenterology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Gastroenterology, OLVG, Amsterdam, Nederland. [3]Dept. of Gastroenterology, UM Utrecht, Utrecht, Nederland. [4]Dept. of Clinical Laboratory, Amsterdam UMC, Amsterdam, Nederland. [5]Dept. of Immunology, UM Utrecht, Utrecht, Nederland.

12.30 Einde van dit programmaonderdeel, vanaf 14.00 uur wordt het DDD programma hervat.

Symposium **NVGIC themajaar: metamorfose** **vanuit de Talkshow studio**

Voorzitters: *A.L. van den Boom en C.M. Marres*

14.00 Van invasief naar minimaal invasief naar non-invasief Oesophaguscarcinoom
Dr. S.M. Lagarde, chirurg, Erasmus MC

14.20 Van palliatief naar curatief of excessief? Uitgebreid colorectaalcarcinoom
Prof. dr. C. Verhoef, oncologisch chirurg, Erasmus MC, Rotterdam

14.40 Transformatie door innovatie in transplantatie — lever machinepreservatie
Dr. V.E. de Meijer, chirurg, UMC Groningen

15.00 Einde van dit programma onderdeel. Het volgende programma start om 15.30 uur. Intussen kunt u de gemodereerde postersessies volgen.

Meet the expert Ischemie **vanuit de Virtual room**

14.00 Dit programma wordt verzorgd door Prof. dr. J.J. Kolkman, MDL-arts, Medisch Spectrum Twente, Enschede.

15.00 Einde van dit programma onderdeel. Het volgende programma start om 15.30 uur. Intussen kunt u de gemodereerde postersessies volgen.

Postersessie I

Voorzitter: *P.P.J. van der Veek*

15.00 An intracolonoscopy bowel cleansing system for hard-to-prepare patients - a prospective multicenter study (p. 69)

M.L.M. van Riswijk[1], K.E. van Keulen[1], H. Neumann[2], P.D. Siersema[1], [1]Dept. of Gastroenterology and Hepatology, Radboudumc, Radboud Institute for Health Sciences, Nijmegen, Nederland. [2]Dept. of Gastroenterology and Hepatology, Universitätsmedizin der Johannes Gutenberg-Universität Mainz, Mainz, Duitsland.

15.05 Prevalence of iron deficiency and anemia in the outpatient Inflammatory Bowel Disease population: a Dutch national cross-sectional study (p. 70)

R. Loveikyte[1], G. Dijkstra[16], A.E. van der Meulen - de Jong[1], M. Boer[1], C.N. van der Meulen[1], R.W.F. ter Steege[2], G. Tack[3], J. Kuyvenhoven[4], B. Jharap[5], M.K. Vu[6], L. Vogelaar[7], R.L. West[8], S. van der Marel[9], T. Römkens[10], Z. Mujagic[11], F. Hoentjen[12], A.A. van Bodegraven[13], F.D.M. van Schaik[14], A.C. de Vries[15], [1]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland. [2]Dept. of Gastroenterology and Hepatology, Martini Hospital, Groningen, Nederland. [3]Dept. of Gastroenterology and Hepatology, Medical Center Leeuwaarden, Leeuwaarden, Nederland. [4]Dept. of Gastroenterology and Hepatology, Spaarne Gasthuis Hospital, Haarlem, Nederland. [5]Dept. of Gastroenterology and Hepatology, Meander Medical Center, Amersfoort, Nederland. [6]Dept. of Gastroenterology and Hepatology, Alrijne Hospital, Leiderdorp, Nederland. [7]Dept. of Gastroenterology and Hepatology, Diakonessenhuis Hospital, Utrecht, Nederland. [8]Dept. of Gastroenterology and Hepatology, Franciscus Gasthuis & Vlietland Hospital, Rotterdam, Nederland. [9]Dept. of Gastroenterology and Hepatology, Haaglanden Medical Center, The Hague, Nederland. [10]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Hospital, Den Bosch, Nederland. [11]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center+, Maastricht, Nederland. [12]Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Nederland. [13]Dept. of Gastroenterology and Hepatology, Zuyderland Medical Center, Heerlen-Sittard-Geleen, Nederland. [14]Dept. of Gastroenterology and Hepatology, Utrecht University Medical Center, Utrecht, Nederland. [15]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland. [16]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland.

15.10 The Effect of Induction Therapy with Infliximab or Vedolizumab on Hepcidin and Iron Status in Patients with Inflammatory Bowel Disease (p. 71)

R. Loveikyte[1], A.R. Bourgonje[2], G. Dijkstra[2], A.E. van der Meulen - de Jong[1], J.J. van der Reijden[1], M.L.C. Bulthuis[3], L.J.A.C. Hawinkels[1], H. van Goor[3], [1]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland. [2]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [3]Dept. of Pathology and Medical Biology, University Medical Center Groningen, Groningen, Nederland.

15.15 Loss of response and dose escalation of infliximab and adalimumab in ulcerative colitis patients: a systematic review and meta-analysis (p. 72)

E.H.J. Savelkoul[1], P.W.A. Thomas[1], L.A.A.P. Derikx[1], N. den Broeder[1], T.E.H. Römkens[2], F. Hoentjen[3], [1]Dept. of Gastroenterology and Hepatology, Radboudumc, Nijmegen, Nederland. [2]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Ziekenhuis, 's-Hertogenbosch, Nederland. [3]Dept. of Medicine, University of Alberta, Edmonton, Canada.

15.20 Endoscopic Ultrasound-Guided Coil and Cyanoacrylate Injection Therapy in Gastric and Ectopic Varices: an Illustrative Case Series (p. 73)
Y.S. de Boer[1], B.A.J. Bastiaansen[2], R.P. Voermans[1], J.J.G.H.M. Bergman[2], R.L.J. van Wanrooij[2], P. Fockens[2], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland.

15.25 Prognostic value of colonic tissue and blood eosinophils in ulcerative colitis (p. 74)
M.L. Haasnoot[1], A. Mookhoek[2], M. Duijvestein[1], G.R.A.M. D'Haens[1], A.J. Bredenoord[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Pathology, Amsterdam UMC, Amsterdam, Nederland.

Postersessie II

Voorzitter: *A.E. van der Meulen*

15.00 Dutch, UK and US professionals' perceptions of screening for Barrett's esophagus and esophageal adenocarcinoma: a concept mapping study (p. 75)
J. Sijben[1], L. Rainey[2], R.C. Fitzgerald[3], S. Wani[4], J.M. Kolb[5], Y. Peters[1], M. Broeders[2], P.D. Siersema[1], [1]Dept. of Gastroenterology and Hepatology, Radboudumc, Nijmegen, Nederland. [2]Dept. of Health Evidence, Radboudumc, Nijmegen, Nederland. [3]Dept. of Cancer Epidemiology and Genetics, University of cambridge, Cambridge, Verenigd Koninkrijk. [4]Dept. of Gastroenterology, University of Colorado, Aurora, Verenigde Staten. [5]Dept. of Gastroenterology, VA Greater Los Angeles, Los Angeles, Verenigde Staten.

15.04 Self-expandable duodenal metal stent placement for palliation of gastric outlet obstruction over the past 20 years in a tertiary hospital in the Netherlands (p. 76)
A.N. Reijm[1], P.A. Zellenrath[1], R.D. van der Bogt[1], L.M.J.W. van Driel[1], P.D. Siersema[2], M.J. Bruno[1], M.C.W. Spaander[1], [1]Dept. of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Radboud UMC, Nijmegen, Nederland.

15.08 Artificial intelligence in (gastroenterology) healthcare – Patients' and physicians' perspectives (p. 77)
Q.E.W. van der Zander[1], M.C.M. van der Ende [2], J.M.M. Janssen[1], B. Winkens[3], F. van der Sommen[4], A.A.M. Masclee [1], E.J. Schoon[2], [1]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center+, Maastricht, Nederland. [2]Dept. of Gastroenterology and Hepatology, Catharina Hospital Eindhoven, Eindhoven, Nederland. [3]Dept. of Mathematics and Statistics, Maastricht University, Maastricht, Nederland. [4]Video Coding and Architectures group, Eindhoven University of Technology, Eindhoven, Nederland.

15.12 Setting up a regional expert panel for complex colorectal polyps (p. 78)
L.W. Zwager, B.A.J. Bastiaansen, E. Dekker, P. . Fockens, Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland.

15.20 Endoscopy teaching in the Netherlands: a national survey among gastroenterology residents (p. 79)
R.A. Mousset[1], W.H. de Vos tot Nederveen Cappel[1], J.P.E.N. Pierie[2], A.M.J. Langers[3], P.L.P. Brand[4], [1]Dept. of Gastroenterology and Hepatology, Isala Zwolle, Zwolle, Nederland. [2]Dept. of Surgery, Medisch Centrum Leeuwarden, Leeuwarden, Nederland. [3]Dept. of Gastro-

enterology and Hepatology, LUMC, Leiden, Nederland. [4]Dept. of Pediatrics, Isala Zwolle, Zwolle, Nederland.

15.24 Automatic textual description of colorectal polyp features: explainable artificial intelligence based on the BASIC classification (p. 80)
A. Thijssen[1], R.M. Schreuder[2], R. Fonollà[3], Q.E.W. van der Zander[1], T. Scheeve[3], S. Subramaniam[4], P. Bhandari[4], P.H.N. de With[3], A.A.M. Masclee[5], F. van der Sommen[3], E.J. Schoon[1], [1]Dept. of Gastroenterology and Hepatology, Maastricht University, GROW School for Oncology and Developmental Biology, Maastricht, Nederland. [2]Dept. of Gastroenterology and Hepatology, Catharina Hospital, Eindhoven, Nederland. [3]Dept. of Electrical Engineering, Eindhoven University of Technology, Eindhoven, Nederland. [4]Dept. of Gastroenterology and Hepatology, Portsmouth Hospitals University NHS Trust, Portsmouth, Verenigd Koninkrijk. [5]Dept. of Gastroenterology and Hepatology, Maastricht University, Maastricht, Nederland.

Symposium Gastrostart **vanuit de Talkshow studio**

Voorzitter: *G. Bouma*

15.30 Introductie voorzitter

15.35 De rol van integratie van hepatitis B virus in het genoom in chronische hepatitis B infectie
V. Loukachov, arts-onderzoeker, Amsterdam UMC loc. AMC

15.45 Identifying the function of intestinal gamma-delta T-cells in celiac disease.
Dr. H.J. Bontkes, Laboratorium Specialist Medische Immunologie , Amsterdam UMC loc. VUmc

15.55 Fluorescent-guided imaging in the rectum: is it possible to let an early rectal cancer glow in the dark?
Dr. J.J. Boonstra, MDL-arts, Leids Universitair Medisch Centrum

16.05 Monitoring T cell immunity with MHC class I multimers in a cohort of chronic HBV patients that stop treatment
B.J.B. Beudeker, arts-onderzoeker, Erasmus MC, Rotterdam

16.15 Uitreiking Gastrostart subsidies 1e ronde 2022

16.30 Einde van dit programma onderdeel.

Break-out sessie: IBS-klachten bij IBD patienten: case-based discussion

16.30 Interactieve casusbespreking, geleid door Z. Mujagic en A. Rezazadeh

17.00 Einde van de sessie

Voorzitters: *A.L. van den Boom en C.M. Marres*

15.30 Endoscopic vacuum therapy for patients with anastomotic leakage after esophago-gastric surgery (p. 81)

L.M.D. Pattynama[1], R.E. Pouw[1], M.I. van Berge Henegouwen[2], F. Daams[2], S.S. Gisbertz[2], J.J.G.H.M. Bergman[1], W.J. Eshuis[2], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Gastrointestinal Surgery, Amsterdam UMC, Amsterdam, Nederland.

15.36 Neoadjuvant chemotherapy in elderly patients with gastric cancer undergoing surgery: a population-based cohort study (p. 82)

A.B.J. Borgstein[1], K. Keywani[1], W.J. Eshuis[1], M.I. van Berge Henegouwen[1], S.S. Gisbertz[1], K.S. Versteeg[2], S. Derks[3], H.W.M. van Laarhoven[3], R.H.A. Verhoeven[45], [1]Dept. of Surgery, Amsterdam UMC, University of Amsterdam, Cancer Center Amsterdam, the Netherlands, [2]Dept. of Medical Oncology, Amsterdam University Medical Center, VU Medical Center Amsterdam Cancer Center Amsterdam, the Netherlands, [3]Dept. of Medical Oncology, Cancer Center Amsterdam, Amsterdam University Medical Centers, University of Amsterdam, the Netherlands, [4]Dept. of Research and Development, Netherlands Comprehensive Cancer Organization (IKNL), Utrecht, the Netherlands, [5]Dept. of Medical Oncology, Amsterdam UMC, University of Amsterdam, Cancer Centre Amsterdam, Amsterdam, the Netherlands

15.42 Pattern of lymph node metastases in gastric cancer: a side-study of the multicenter LOGICA-trial (p. 83)

R. van Hillegersberg[1], C. de Jongh[1], L. Triemstra[1], A. van der Veen[1], L.A.A. Brosens[2], M.D.P. Luyer[3], J.H.M.B. Stoot[4], J.P. Ruurda[1], [1]Dept. of Surgery, University Medical Center Utrecht, Utrecht, Nederland. [2]Dept. of Pathology, University Medical Center Utrecht, Utrecht, Nederland. [3]Dept. of Surgery, Catharina Hospital Eindhoven, Eindhoven, Nederland. [4]Dept. of Surgery, Zuyderland Medical Center, Sittard, Nederland.

15.48 Distal Pancreatectomy Fistula Risk Score (D-FRS): Development and International Validation (p. 84)

E.A. van Bodegraven[1], M. De Pastena[2], M.G. Besselink[1], C. Bassi[2], , [1]Dept. of Surgery, Department of Surgery, Amsterdam UMC, University of Amsterdam, Cancer Center Ams, Amsterdam, Nederland. [2]Dept. of Surgery, General and Pancreatic Surgery Department, Pancreas Institute, University and Ho, Verona, Italië.

15.54 The Impact of Complications after Resection of Pancreatic Ductal Adenocarcinoma on Disease Recurrence (p. 85)

A.C. Henry[1], I.W.J.M. van Goor[1], H.C. van Santvoort[1], I.Q. Molenaar[1], L.A. Daamen[1], F.J. Smits[1], A. Nagelhout[1], M.G.H. Besselink[2], O.R. Busch[2], C.H. van Eijck[3], B.A. Bonsing[4], K. Bosscha[5], R.M. van Dam[6], S. Festen[7], B. Groot Koerkamp[3], E. van der Harst[8], I.H. de Hingh[9], M. van der Kolk[10], M. Liem[11], V.E. de Meijer[12], G.A. Patijn[13], D. Roos[14], J.M. Schreinemakers[15], F. Wit[16], B.M. Zonderhuis[2], [1]Dept. of Surgery, Regional Academic Cancer Center Utrecht, Utrecht, Nederland. [2]Dept. of Surgery, Cancer Center Amsterdam, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [3]Dept. of Surgery, Erasmus MC Cancer Institute, Rotterdam, Nederland. [4]Dept. of Surgery, Leiden University Medical Center, Leiden, Nederland. [5]Dept. of Surgery, Jeroen Bosch Hospital, 's Hertogenbosch, Nederland. [6]Dept. of Surgery, Maastricht University Medical Center, Maastricht, Nederland. [7]Dept. of Surgery, Onze Lieve Vrouwe Gasthuis, Amsterdam, Nederland. [8]Dept. of Surgery, Maasstad Hospital, Rotterdam, Nederland. [9]Dept. of Surgery, Catharina Hospital, Eindhoven, Nederland. [10]Dept.

of Surgery, Radboud University Medical Center, Nijmegen, Nederland. [11]Dept. of Surgery, Medisch Spectrum Twente, Enschede, Nederland. [12]Dept. of Surgery, University Medical Center Groningen, University of Groningen, Groningen, Nederland. [13]Dept. of Surgery, Isala, Zwolle, Nederland. [14]Dept. of Surgery, Reinier de Graaf Group, Delft, Nederland. [15]Dept. of Surgery, Amphia Hospital, Breda, Nederland. [16]Dept. of Surgery, Tjongerschans, Heerenveen, Nederland.

16.00 Short- and long-term outcomes of pancreatic cancer resection in elderly patients: a nationwide analysis (p. 86)

A.C. Henry[1], I.Q. Molenaar[1], H.C. van Santvoort[1], T.J. Schouten[1], L.A. Daamen[1], M.S. Walma[1], P. Noordzij[2], G.A. Cirkel[3], M. Los[3], M.G.H. Besselink[4], O.R. Busch[4], B.A. Bonsing[5], K. Bosscha[6], R.M. van Dam[7], S. Festen[8], B. Groot Koerkamp[9], E. van der Harst[10], I.H. de Hingh[11], G. Kazemier[4], M. Liem[12], V.E. de Meijer[13], V.B. Nieuwenhuijs[14], D. Roos[15], J.M. Schreinemakers[16], M.W.J. Stommel[17], [1]Dept. of Surgery, Regional Academic Cancer Center Utrecht, Utrecht, Nederland. [2]Dept. of Surgery, St. Antonius Hospital, Nieuwegein, Nederland. [3]Dept. of Medical Oncology, Regional Academic Cancer Center Utrecht, Utrecht, Nederland. [4]Dept. of Surgery, Cancer Center Amsterdam, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [5]Dept. of Surgery, Leiden University Medical Center, Leiden, Nederland. [6]Dept. of Surgery, Jeroen Bosch Hospital, 's Hertogenbosch, Nederland. [7]Dept. of Surgery, Maastricht University Medical Center, Maastricht, Nederland. [8]Dept. of Surgery, Onze Lieve Vrouwe Gasthuis, Amsterdam, Nederland. [9]Dept. of Surgery, Erasmus MC Cancer Institute, Rotterdam, Nederland. [10]Dept. of Surgery, Maasstad Hospital, Rotterdam, Nederland. [11]Dept. of Surgery, Catharina Hospital, Eindhoven, Nederland. [12]Dept. of Surgery, Medisch Spectrum Twente, Enschede, Nederland. [13]Dept. of Surgery, University Medical Center Groningen, University of Groningen, Groningen, Nederland. [14]Dept. of Surgery, Isala, Zwolle, Nederland. [15]Dept. of Surgery, Reinier de Graaf Group, Delft, Nederland. [16]Dept. of Surgery, Amphia Hospital, Breda, Nederland. [17]Dept. of Surgery, Radboud University Medical Center, Nijmegen, Nederland.

16.06 Implications of the new MRI-based rectum definition according to the sigmoid take-off: a multi-center cohort study (p. 87)

T.A. Burghgraef[1], J.C. Hol[2], M.L.W. Rutgers[3], R. Hompes[3], C. Sietses[4], E.C.J. Consten[1], [1]Dept. of Surgery, University Medical Center Groningen, Groningen, Nederland. [2]Dept. of Surgery, Amsterdam UMC, locatie VUmc, Amsterdam, Nederland. [3]Dept. of Surgery, Amsterdam UMC, locatie AMC, Amsterdam, Nederland. [4]Dept. of Surgery, Ziekenhuis Gelderse Vallei, Ede, Nederland.

16.12 Endoscopic Vacuum-assisted Surgical Closure (EVASC) of anastomotic defects after low anterior resection for rectal cancer; lessons learned (p. 88)

K. Talboom[1], N.G. Greijdanus[2], C.Y. Ponsioen[3], P.J. Tanis[4], W.A. Bemelman[1], R. Hompes[1], [1]Dept. of Surgery, Amsterdam UMC, locatie AMC, Amsterdam, Nederland. [2]Dept. of Surgery, Radboudumc, Nijmegen, Nederland. [3]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, locatie AMC, Amsterdam, Nederland. [4]Dept. of Surgery, Amsterdam UMC, location VUmc, Amsterdam, Nederland.

16.18 Cost-effectiveness of sacral neuromodulation versus personalized conservative treatment in idiopathic slow-transit constipation: Results from the No.2-Trial (p. 89)

S.C.M. Heemskerk[1], S.O. Breukink[2], S.M.J. Van Kuijk[1], M.A. Benninga[3], C.I.M. Baeten[4], A.A.M. Masclee[5], J. Melenhorst[2], C.D. Dirksen[1], [1]Dept. of Clinical Epidemiology and Medical Technology Assessment (KEMTA) , Maastricht University Medical Center+, Maastricht, Nederland. [2]Dept. of Surgery, Maastricht University Medical Center+, Maastricht, Nederland. [3]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, Emma Children's Hospital/Amsterdam University Medical Center, Amsterdam, Nederland. [4]Dept. of Surgery, Groene Hart Hospital, Gouda, Nederland. [5]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center+, Maastricht, Nederland.

President Select **vanuit de Talkshow studio**

Voorzitters: *C.J. van der Woude en A.E. van der Meulen*

17.00 Predicted absolute risk of lymph node metastasis in T1 colorectal cancer in the sole presence of tumour budding, lymphovascular invasion or poor differentiation: a meta-analysis (p. 90)

S.R.B. Lamme[1], L. van der Schee[1], K.M. Gijsbers[1], K.J.C. Haasnoot[1], P. Didden[1], M.M. Lacle[2], S.G. Elias[3], L.M.G. Moons[1], [1]Dept. of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Nederland. [2]Dept. of Pathology, University Medical Center Utrecht, Utrecht, Nederland. [3]Dept. Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, Nederland.

17.10 All-cause mortality after successful endoscopic eradication therapy for Barrett's related neoplasia in a nationwide cohort of 1154 patients (p. 91)

E.P.D. Verheij[1], S.N. Van Munster[1], E.A. Nieuwenhuis[2], C.C. Cotton[3], B.L.A.M. Weusten[4], L. Alvarez Herrero[2], A. Alkhalaf[5], B.E. . Schenk [5], E.J. Schoon[6], W. Curvers[6], A.D. Koch[7], P.J.F. De Jonge[7], T.J. Tang[8], W.B. Nagengast[9], J. Westerhof[9], M.H.M.G. Houben[10], N.J. Shaheen[3], J.J.G.H.M. Bergman[1], R.E. Pouw[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Centers, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, St. Antonius Hospital, Nieuwegein, Nederland. [3]Dept. of Gastroenterology and Hepatology, University of North Carolina, Chapel Hill, Verenigde Staten. [4]Dept. of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Nederland. [5]Dept. of Gastroenterology and Hepatology, Isala Hospital, Zwolle, Nederland. [6]Dept. of Gastroenterology and Hepatology, Catharina Hospital, Eindhoven, Nederland. [7]Dept. of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Nederland. [8]Dept. of Gastroenterology and Hepatology, IJsselland Hospital, Capelle aan den Ijssel, Nederland. [9]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [10]Dept. of Gastroenterology and Hepatology, Haga Hospital, Den Haag, Nederland.

17.20 Sleep positional therapy for nocturnal gastroesophageal reflux: a double-blind, randomized, sham-controlled trial (p. 92)

J.M. Schuitenmaker[1], T. Kuipers[1], R.A.B. Oude Nijhuis[1], M.P. Schijven[2], A.J.P.M. Smout[1], P. Fockens[1], A.J. Bredenoord[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Surgery, Amsterdam UMC, Amsterdam, Nederland.

17.30 Invited lecture: Current treatment of ulcerative colitis, including the newly introduced small molecules

Dr. Peter Irving, Consultant Gastroenterologist, Guy's and St Thomas' Hospital, Londen

18.00 Uitreiking NVGE Proefschriftprijs gevolgd door lezing

18.15 Einde van het programma.

Abstractsessie Sectie Experimentele Gastroenterologie **vanuit de Talkshow studio**

Voorzitters: *L.J.A.C. Hawinkels en A.A. te Velde*

08.32 Gastrointestinal cancer-derived fibroblasts expressing JAM-A are amenable to targeting by oncolytic reovirus (p. 93)
T.J. Harrijvan[1], L.J.A.C. Hawinkels[1], V. Kemp[2], M. Golo[1], [1]Dept. of Gastroenterology and Hepatology, LUMC, Leiden, Nederland. [2]Dept. of Cell and Chemical Biology, LUMC, Leiden, Nederland.

08.38 CD8+ T cells in the invasive margin combined with FOXP3+ T cells in the tumor center significantly associate with survival in resectable gastric cancer, a post-hoc analysis of the Dutch D1/D2 trial (p. 94)
A.T.T.D. Soeratram[1], H.D. Biesma[1], J.M.P. Egthuijsen[1], E. Meershoek-Klein Kranenbarg[2], H.H. Hartgrink[2], C.J.H. van de Velde[2], E. van Dijk[1], Y. Kim[1], H.W.M. van Laarhoven[3], B. Ylstra[1], N.C.T. van Grieken[1], [1]Dept. of Pathology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Surgery, Leiden University Medical Center, Leiden, Nederland. [3]Dept. of Medical Oncology, Amsterdam UMC, Amsterdam, Nederland.

08.44 Inhibition of stromal glycolysis by targeting PFKFB3 decreases experimental colitis (p. 95)
Z. Zhou, L.G. Plug, E.S.M. de Jonge-Muller, A. Abou Elmagd, A.E. van der Meulen-de Jong, M.C. Barnhoorn, L.J.A.C. Hawinkels, Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland.

08.50 Targeting endoglin in esophageal squamous cell carcinoma (p. 96)
S.K. Hakuno[1], S.G.T. Janson[1], J.J. Boonstra[1], L.J.A.C. Hawinkels[1], M. Slingerland[2], [1]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland. [2]Dept. of Medical Oncology, Leiden University Medical Center, Leiden, Nederland.

08.56 Keynote: Ontogeny of the intestinal host-microbial interaction
Prof. dr. med. Mathias Hornef, Universitätsklinikum Aachen

09.30 Closure

Abstractsessie - Sectie Gastrointestinale Endoscopie **vanuit de Virtual studio**

Voorzitters: *B.A.J. Bastiaansen en H.T. Künzli*

08.30 Towards a Greener Endoscopy Room: Recycling Plastic Waste (p. 97)

D.C. de Jong[1], A.G. Volkers[2], E. de Ridder[3], G.R.A.M. D'Haens[2], P. Fockens[2], M. Duijvestein[4], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, locatie AMC, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland. [3]MINT zorgadvies, Den Haag, Nederland. [4]Dept. of Gastroenterology and Hepatology, Radboudumc, Nijmegen, Nederland.

08.36 Thermal ablation of mucosal defect margins to prevent local recurrence after endoscopic mucosal resection of large non-pedunculated colorectal polyps: a systematic review and meta-analysis (p. 98)

L.W.T. Meulen[1], R.M.M. Bogie[1], B. Winkens[2], A.A.M. Masclee[1], L.M.G. Moons[3], [1]Dept. of Gastroenterology, Maastricht UMC+, Maastricht, Nederland. [2]Dept. of Mathematics and Statistics, Maastricht University, Maastricht, Nederland. [3]Dept. of Gastroenterology, UMC Utrecht, Utrecht, Nederland.

08.42 Diagnosis and treatment of exocrine pancreatic insufficiency in chronic pancreatitis: an international expert survey and case vignette study (p. 99)

F.E.M. de Rijk[1], C.L. . van Veldhuisen[2], M.G. . Besselink[2], J.E. van Hooft[3], H.C. . van Santvoort[4], E.J.M. van Geenen[5], P. Hegyi[6], J.-.M. Löhr[7], J.E. Dominguez-Munoz[8], P.J.F. de Jonge[1], M.J. Bruno[1], R.C. Verdonk[9], [1]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland. [2]Dept. of Surgery, Amsterdam UMC, University of Amsterdam, Amsterdam Gastroenterology Endocrinology, Amsterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland. [4]Dept. of Surgery, St. Antonius Hospital, Nieuwegein, Nederland. [5]Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Nederland. [6]Institute for Translational Medicine, Medical School, University of Pécs, Pécs, Hongarije. [7]Center for Digestive Diseases, Karolinska University Hospital, Stockholm, Zweden. [8]Dept. of Gastroenterology and Hepatology, University Hospital of Santiago de Compostela, Santiago de Compostela, Spanje. [9]Dept. of Gastroenterology and Hepatology, St. Antonius Hospital, Nieuwegein, Nederland.

08.48 Diagnostic value of a sensitive next generation sequencing panel with unique molecular identifiers (UMIs) for evaluating routine EUS-FNA smears of solid pancreatic lesions (p. 100)

H.M. Schutz[1], R. Quispel[1], P.N. Atmodimedjo[2], K. Biermann[2], M.F. van Velthuysen[2], W.N.M. Dinjens[2], M.J. Bruno[3], L.M.J.W. van Driel[3], [1]Dept. of Gastroenterology and Hepatology, Reinier de Graaf Gasthuis, Delft, Nederland. [2]Dept. of Pathology, Erasmus University Medical Center, Rotterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland.

08.54 Comparison of two intraductal brush cytology devices for suspected malignant biliary strictures: interim-analysis of a randomized controlled trial (p. 101)

M. Gorris[1], J.E. Van Hooft[4], N.C.M. Van Huijgevoort[1], P. Fockens[1], S.J. Lekkerkerker[1], S.L. Meijer[2], J. Verheij[2], R.P. Voermans[1], R.L.J. . van Wanrooij[3], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [2]Dept. of Pathology, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [3]Dept. of Gastroenterology, Amsterdam UMC, Vrije Universiteit Amsterdam, Amsterdam, Nederland.

[4]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland.

09.00 Perforations and fistulas of the gastrointestinal tract in patients with necrotizing pancreatitis in a nationwide prospective cohort (p. 102)

H.C. Timmerhuis[1], S.M. van Dijk[2], R.A. Hollemans[3], D.S. Umans[4], C.J. Sperna Weiland[5], M.G.H. Besselink[6], S.A.W. Bouwense[7], M.J. Bruno[8], P. van Duijvendijk[9], C.H.J. van Eijck[10], Y. Issa[11], S. Mieog[12], I.Q. Molenaar[13], M.W.J. Stommel[14], T.L. Bollen[15], R.P. Voermans[4], R.C. Verdonk[16], H.C. van Santvoort[17], [1]Dept. of Surgery, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [2]Dept. of Surgery, Amsterdam UMC, Amsterdam, Nederland. [3]Dept. of Surgery, UMC Utrecht, Utrecht, Nederland. [4]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [5]Dept. of Gastroenterology and Hepatology, Radboudumc, Nijmegen, Nederland. [6]Dept. of Gastrointestinal Surgery, Amsterdam UMC, Amsterdam, Nederland. [7]Dept. of Gastrointestinal Surgery, Maastricht UMC+, Maastricht, Nederland. [8]Dept. of Gastroenterology and Hepatology, ErasmusMC, Rotterdam, Nederland. [9]Dept. of Gastrointestinal Surgery, Gelre Ziekenhuis, Apeldoorn, Nederland. [10]Dept. of Gastrointestinal Surgery, ErasmusMC, Rotterdam, Nederland. [11]Dept. of Surgery, Gelre Ziekenhuis, Apeldoorn, Nederland. [12]Dept. of Gastrointestinal Surgery, Leiden UMC, Leiden, Nederland. [13]Dept. of Gastrointestinal Surgery, UMC Utrecht, Utrecht, Nederland. [14]Dept. of Gastrointestinal Surgery, Radboudumc, Nijmegen, Nederland. [15]Dept. of Radiology, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [16]Dept. of Gastroenterology and Hepatology, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [17]Dept. of Gastrointestinal Surgery, St. Antonius Ziekenhuis, Nieuwegein, Nederland.

09.06 Adverse events of endoscopic full-thickness resection: results from the German and Dutch colorectal FTRD registry (p. 103)

L.W. Zwager[1], J. Mueller[2], B. Stritzke[3], N.S.M. Montazeri[4], K. Caca[5], E. Dekker[1], P. Fockens[1], A. Schmidt[2], B.A.J. Bastiaansen[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland. [2]Dept. of Medicine, Medical Center, University of Freiburg, Freiburg, Duitsland. [3]Novineon CRO, Tuebingen, Duitsland. [4]Dept. of Biostatistics, Amsterdam UMC, location AMC, Amsterdam, Nederland. [5]Dept. of Gastroenterology, Klinikum Ludwigsburg, Ludwigsburg, Duitsland.

09.12 Endoscopic vacuum therapy for patients with esophageal perforation: a muli-center retrospective cohort study (p. 104)

L.M.D. Pattynama[1], J. Luttikhold[2], S. Seewald[3], S. Groth[3], B. Morell[4], W.J. Eshuis[5], R.E. Pouw[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Gastrointestinal Surgery, Karolinska University Hospital, Stockholm, Zweden. [3]Dept. of Gastroenterology and Hepatology, GastroZentrum Hirslanden, Zürich, Zwitserland. [4]Dept. of Gastroenterology and Hepatology, University Hospital, Zürich, Zwitserland. [5]Dept. of Gastrointestinal Surgery, Amsterdam UMC, Amsterdam, Nederland.

09.18 Introduction of a 3rd generation FNB needle in community hospital practice increases quality and yield of EUS-guided TA of solid pancreatic lesions (p. 105)

H.M. Schutz[1], M.P.G.F. Anten[2], I. Leeuwenburgh[2], K.J. Hoogduin[3], M.J. Bruno[4], L.M.J.W. van Driel[4], R. Quispel[1], [1]Dept. of Gastroenterology and Hepatology, Reinier de Graaf Gasthuis, Delft, Nederland. [2]Dept. of Gastroenterology and Hepatology, Franciscus en Vlietland, Rotterdam, Nederland. [3]Dept. of Pathology, Pathan, Rotterdam, Nederland. [4]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland.

09.24 Microbiology and antimicrobial therapy in necrotizing pancreatitis: an observational multicenter study (p. 106)

H.C. Timmerhuis[1], F.F. van den Berg[2], P.C. Noorda[3], S.M. van Dijk[2], J. van Grinsven[2], C.J. Sperna Weiland[4], D.S. Umans[5], Y. Mohamed[3], W.L. Curvers[6], S.A.W. Bouwense[7], M. Hadithi[8], A. Inderson[9], Y. Issa[10], J.M. Jansen[11], P.J.F. Jonge[12], R. Quispel[13], M.P. Schwartz[14], M.W.J. Stommel[15], A.C.I.T.L. Tan[16], N.G. Venneman[17], M.G.H. Besselink[18], M.J. Bruno[12], T.L. Bollen[19], E. Sieswerda[20], R.C. Verdonk[21], R.P. Voermans[5], H.C. van Santvoort[22], [1]Dept. of Surgery, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [2]Dept. of Surgery, Amsterdam UMC, Amsterdam, Nederland. [3]Dept. of Gastroenterology, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [4]Dept. of Gastroenterology and Hepatology, Radboudumc, Nijmegen, Nederland. [5]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [6]Dept. of Gastroenterology and Hepatology, Catharina Ziekenhuis, Eindhoven, Nederland. [7]Dept. of Gastrointestinal Surgery, Maastricht UMC+, Maastricht, Nederland. [8]Dept. of Gastroenterology and Hepatology, Maasstad Ziekenhuis, Rotterdam, Nederland. [9]Dept. of Gastroenterology and Hepatology, Leiden UMC, Leiden, Nederland. [10]Dept. of Surgery, Gelre Ziekenhuis, Apeldoorn, Nederland. [11]Dept. of Gastroenterology and Hepatology, OLVG, Amsterdam, Nederland. [12]Dept. of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Nederland. [13]Dept. of Gastroenterology and Hepatology, Reinier de Graaf Gasthuis, Delft, Nederland. [14]Dept. of Gastroenterology and Hepatology, Meander MC, Amersfoort, Nederland. [15]Dept. of Gastrointestinal Surgery, Radboudumc, Nijmegen, Nederland. [16]Dept. of Gastroenterology and Hepatology, CWZ, Nijmegen, Nederland. [17]Dept. of Gastroenterology and Hepatology, Medisch Spectrum Twente, Enschede, Nederland. [18]Dept. of Gastrointestinal Surgery, Amsterdam UMC, Amsterdam, Nederland. [19]Dept. of Radiology, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [20]Dept. of Medical Microbiology, UMC Utrecht, Utrecht, Nederland. [21]Dept. of Gastroenterology and Hepatology, St. Antonius Ziekenhuis, Nieuwegein, Nederland. [22]Dept. of Gastrointestinal Surgery, St. Antonius Ziekenhuis, Nieuwegein, Nederland.

Break-out sessie: De verzuurde lever: een casus

Voorzitter: *D. Slijepcevic*

09.30 Interactieve casusbespreking

10.00 Einde van de sessie

Meet the Expert sessie **vanuit de Virtual studio**

10.00 PhD tips & tricks: 'how to write a captivating abstract'

In deze sessie georganiseerd door de NVGE PhD werkgroep zullen key note speakers Prof. dr. Joost Drenth (MDL-arts in Radboud UMC en editor-in-chief UEG journal) en Prof. dr. Evelien Dekker (MDL-arts in het Amsterdam UMC, co-editor journal Endoscopy en Advisory board Nature Reviews of Gastroenterology & Hepatology) ons meenemen in de kunst van het schrijven van een goed abstract. Door middel van voorbeelden zullen zij concrete tips & tricks geven waar elke onderzoeker mee aan de slag kan. De sessie wordt afgesloten met een Q&A, dus schrijf je vragen vooral vast op!

11.00 Einde van de sessie. Het programma wordt om 11.30 uur hervat.

DONDERDAG 17 MAART 2022

MDL en duurzaamheid, there's no way back: groen moet je doen **vanuit de Talkshow studio**

Voorzitters: *M. Duijvestein en C.J.J. Mulder*

10.00	Impact verduurzaming op gezondheidszorg en mogelijkheden tot verduurzaming (The 5 R's) *Dr. M. Duijvestein, MDL-arts, Radboudumc, Nijmegen*
10.05	Impact MDL specifiek: CO2 footprint endoscopie *Dr. A.T. Zuur, MDL-arts, Ziekenhuis de Tjongerschans, Heerenveen*
10.10	Reuse & Recycle: Voorbeeld verduurzaming op de endoscopie *D. Schiereck, endoscopieverpleegkundige, Amsterdam UMC* *A.G. Volkers, arts-onderzoeker, Amsterdam UMC, loc. AMC*
10.20	Refuse & Reduce: Geen scopie voor dyspepsie *Dr. M.A. Lantinga, MDL-arts, Máxima MC, Eindhoven*
10.30	Tafeldiscussie
10.35	Verduurzaming MDL afdeling *Dr. F. Harinck, MDL-arts, Franciscus Gasthuis en Vlietland, Rotterdam*
10.45	Verzekering/pensioen *Dr. S.J.L.B. Zweers, MDL-arts, Maasstad Ziekenhuis*
10.55	Discussie
11.00	Einde van de sessie. Het programma wordt om 11.30 uur hervat.

NVMDL symposium Palliatieve zorg en de MDL **vanuit de Virtual studio**

Voorzitter: *K.M.A.J. Tytgat*

11.30	Palliatie bij eindstadium levercirrose *Dr. R.B. Takkenberg, MDL-arts, Amsterdam UMC*
11.45	Discussie
11.50	Voeding in de Palliatieve fase *Dr. S. Beijer, senior onderzoeker, IKNL*
12.05	Vragen
12.10	Joep en het levenseinde *Prof. dr. J.F.W.M. Bartelsman, MDL-arts en arts levenseinde kliniek, DC Klinieken Lairesse, Amsterdam*
12.25	Discussie
12.30	Einde van de sessie

DONDERDAG 17 MAART 2022

Symposium V&VN MDL **vanuit de Talkshow studio**

Voorzitters: *A.P.M. Boersen en A.N. Reijm*

11.30	Sedatie vs. Propofol *Dr. M. Klemt–Kropp, MDL-arts, Noordwest Ziekenhuisgroep, Alkmaar*
11.50	Discussie/vragen
12.00	Barrett: vroegtijdige detectie en behandeling *M. van der Ende, verpleegkundig specialist MDL, Catharina Ziekenhuis, Eindhoven*
12.20	Discussie/vragen
12.30	Pijnmeting bij scopie *L. van Geel, Verpleegkundig endoscopist, St. Antonius Ziekenhuis, Nieuwegein*
13.00	Einde van dit programma onderdeel. U kunt het vervolg van het V&VN MDL programma volgen onder 'abstractsessies'.

V&VN MDL Abstractsessie **vanuit de Virtual studio**

Voorzitters: *A.P.M. Boersen en A.N. Reijm*

13.00	Passende zorg bij levercirrose *F. van de Rijke, verpleegkundig specialist MDL, Jeroen Bosch Ziekenhuis, Den Bosch*
13.15	De vermoeide IBD- patiënt: een pragmatisch en multidisciplinair zorgpad *F. Beckers, IBD verpleegkundige, UMC Groningen*
13.30 - 14.00	Ledenvergadering via MS Teams

Abstractsessie Sectie - Gastrointestinale Endoscopie **vanuit de Talkshow studio**

Voorzitters: *A. Inderson en M.J.M. Groenen*

14.00 Time planning of colorectal endoscopic submucosal dissection at tertiary Western centers: development of a prediction model for procedure duration (cESD-TIME formula) (p. 107)

H. Dang[1], N. Dekkers[1], E.W. Steyerberg[2], K. Nobbenhuis[1], K.J.C. Haasnoot[3], L. van Tilburg[4], J. van der Kraan[1], A.M.J. Langers[1], W. de Graaf[4], A.D. Koch[4], P. Didden[3], L.M.G. Moons[3], J.E. van Hooft[1], J.C.H. Hardwick[1], J.J. Boonstra[1], [1]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland. [2]Dept. of Biomedical Data Sciences, Leiden University Medical Center, Leiden, Nederland. [3]Dept. of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Nederland. [4]Dept. of Gastroenterology and Hepatology, Erasmus MC, University Medical Center Rotterdam, Rotterdam, Nederland.

14.06 Real-time characterization of colorectal polyps using artificial intelligence – A prospective pilot study comparing two computer-aided diagnosis systems and one expert endoscopist (p. 108)

Q.E.W. van der Zander[1], R.M. Schreuder[2], A. Thijssen[1], C.H.J. Kusters[3], N. Dehghani[3], T. Scheeve[3], R. Fonolla[3], B. Winkens[4], M.C.M. van der Ende [2], P.H.N. de With[3], F. van der Sommen[3], A.A.M. Masclee[1], E.J. Schoon[2], [1]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center+, Maastricht, Nederland. [2]Dept. of Gastroenterology and Hepatology, Catharina Hospital Eindhoven, Eindhoven, Nederland. [3]Video Coding and Architectures group, Eindhoven University of Technology, Eindhoven, Nederland. [4]Dept. of Mathematics and Statistics, Maastricht University, Maastricht, Nederland.

14.12 Real-time use of a computer-aided diagnosis system for optical diagnosis of diminutive colorectal polyps including sessile serrated lesions: a prospective, multicenter study with benchmarking against screening endoscopists (p. 109)

B.B.S.L. Houwen[1], Y. Hazewinkel[2], I. Giotis[3], J.L.A. Vleugels[1], N.S. Mostafavi[1], P. van Putten[4], P. Fockens[1], E. Dekker[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Center, location AMC, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Radboud University Nijmegen Medical Center, Radboud University of Nijmegen, Nijmegen, Nederland. [3]ZiuZ, Gorrdijk, Nederland. [4]Dept. of Gastroenterology and Hepatology, Medisch Centrum Leeuwarden, Leeuwarden, Nederland.

14.18 Trust in artificial intelligence – do confidence scores increase the appropriate trust of a medical doctor in computer-aided diagnosis systems? (p. 110)

R. Roumans[1], Q.E.W. van der Zander[2], T. Scheeve[3], C. Kusters[3], N. Dehghani[3], R.M. Schreuder[4], A.A.M. Masclee[2], C.C.P. Snijders[1], P.H.N. de With[3], F. van der Sommen[3], E.J. Schoon[2], [1]Dept. of Human-Technology Interaction, Eindhoven University of Technology, Eindhoven, Nederland. [2]Dept. of Gastroenterology and Hepatology, MUMC+, Maastricht, Nederland. [3]Video Coding and Architectures group, Eindhoven University of Technology, Eindhoven, Nederland. [4]Dept. of Gastroenterology and Hepatology, Catharina Hospital Eindhoven, Eindhoven, Nederland.

14.24 A robust and compact deep learning system for primary detection of early Barrett's neoplasia outperforms general endoscopists (p. 111)

K.N. Fockens[1], J.B. Jukema[1], M.R. Jong[1], T. Boers[2], J.A. van der Putten[2], R.E. Pouw[1], B.L.A.M. Weusten[3], M.H.M.G. Houben[4], W.B. Nagengast[5], J. Westerhof[3], L. Alvarez Herrero[6], A. Alkhalaf[7], K. Ragunath[8], M. Barret[9], J. Ortiz Fernandez-Sordo[10], O. Pech[11], T. Beyna[12], S. Seewald[13], F. van der Sommen[2], P.H. de With[2], A.J. de Groof[1], J.J.G.H.M. Bergman[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Electrical Engineering, Technische Universiteit Eindhoven, Eindhoven, Nederland. [3]Dept. of Gastroenterology and Hepatology, UMC Utrecht, Utrecht, Nederland. [4]Dept. of Gastroenterology and Hepatology, HagaZiekenhuis, Den Haag, Nederland. [5]Dept. of Gastroenterology and Hepatology, UMC Groningen, Groningen, Nederland. [6]Dept. of Gastroenterology and Hepatology, Sint Antonius Ziekenhuis, Nieuwegein, Nederland. [7]Dept. of Gastroenterology and Hepatology, Isala Ziekenhuis, Zwolle, Nederland. [8]Dept. of Gastroenterology and Hepatology, Royal Perth Hospital, Perth, Australië. [9]Dept. of Gastroenterology and Hepatology, Assistance Publique Hopitaux de Paris, Paris, Frankrijk. [10]Dept. of Gastroenterology and Hepatology, Nottingham University Hospital, Nottingham, Verenigd Koninkrijk. [11]Dept. of Gastroenterology and Hepatology, Barmherzige Bruder Regensburg, Regensburg, Duitsland. [12]Dept. of Gastroenterology and Hepatology, Evangelisches Krankenhaus Dusseldorf, Dusseldorf, Duitsland. [13]Dept. of Gastroenterology and Hepatology, Hirslanden Klinik Zurich, Zurich, Zwitserland.

14.30 Near-infrared fluorescence molecular endoscopy shows promising results in detecting dysplastic esophageal lesions using topically administered fluorescent tracers (p. 112)

R.Y. Gabriëls[1], W.T.R. Hooghiemstra[2], G. Kats-Ugurlu[3], D.J. Robinson[4], V. Ntziachristos[5], D. Gorpas[5], W.B. Nagengast[1], [1]Dept. of Gastroenterology and Interventional Endoscopy, UMCG, Groningen, Nederland. [2]Pharmacology and Toxicology, UMCG, Groningen, Nederland. [3]Dept. of Pathology, UMCG, Groningen, Nederland. [4]Dept. of Otorhinolaryngology and Head and Neck Surgery, Erasmus University, Groningen, Nederland. [5]Technische Universität München, Groningen, Nederland.

14.36 Endoscopic follow-up of radically resected submucosal adenocarcinoma in Barrett's esophagus: early results of an ongoing prospective, international, multicenter cohort registry (PREFER trial) (p. 113)

M.W. Chan[1], E.A. Nieuwenhuis[1], M. Jansen[2], K. Belghazi[1], W.B. Nagengast[3], J. Westerhof[3], A.D. Koch[4], M.D.W. Spaander[4], R. Bisschops[5], G. De Hertogh[6], M.J. Bourke[7], H. Neuhaus[8], B.L.A.M. Weusten[9,20], A. Alkhalaf[10], O. Pech[11], C. Schlag[12], S. Seewald[13], M.H.M.G. Houben[14], E.J. Schoon[15], E. Coron[16], R. Haidry[17], H. Messmann[18], S.L. Meijer[19], J.J.G.H.M. Bergman[1], R.E. Pouw[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Pathology, University College London Hospital NHS Trust, London, Verenigd Koninkrijk. [3]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [4]Dept. of Gastroenterology and Hepatology, Erasmus MC Cancer Institute, University Medical Center, Rotterdam, Nederland. [5]Dept. of Gastroenterology and Hepatology, University Hospitals Leuven, Leuven, België. [6]Dept. of Pathology, University Hospitals Leuven, Leuven, België. [7]Dept. of Gastroenterology and Hepatology, Westmead Hospital, Sydney, Australië. [8]Dept. of Gastroenterology, Evangelisches Krankenhaus Düsseldorf, Düsseldorf, Duitsland. [9]Dept. of Gastroenterology, Sint Antonius Hospital, Nieuwegein, Nederland. [10]Dept. of Gastroenterology and Hepatology, Isala Clinics, Zwolle, Nederland. [11]Dept. of Gastroenterology and Interventional Endoscopy, St John of God Hospital, Regensburg, Duitsland. [12]Dept. of Gastroenterology, Technical University of Munich, II, Munich, Duitsland. [13]Dept. of Gastroenterology, Klinik Hirslanden, Zurich, Zwitserland. [14]Dept. of Gastroenterology and Hepatology, Haga Teaching Hospital, Den Haag, Nederland. [15]Dept. of Gastroenterology and Hepatology, Catharina Hospital, Eindhoven, Nederland. [16]Dept. of Gastroenterology and Hepatology, Nantes University Hospital, Nantes, Frankrijk. [17]Dept. of Gastroenterology and Hepatology, University College London Hospital NHS Trust, London,

Verenigd Koninkrijk. [18]Dept. of Gastroenterology and Hepatology, University Hospital Augsburg, Augsburg, Duitsland. [19]Dept. of Pathology, Amsterdam UMC, Amsterdam, Nederland. [20] University Medical Center, Utrecht University, Utrecht, Nederland

14.42 EUS-guided gastrojejunostomy shows higher clinical success and lower dysfunction rate in comparison with duodenal stents in malignant gastric outlet obstruction: An international multicenter propensity score matched comparison (p. 114)

P.G.M. Gooyer[1], G. Vanelle[2], M. van Bronswijk[3], R.L. van Wanrooij[1], F. Mandarino[4], W. Laleman[5], H. van Malenstein[3], G. Dell'Anna[2], P. Fockens[1], P. Arcidiacono[2], S. van der Merwe[3], R.P. Voermans[1], , [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, IRCCS San Raffaele Scientific Institute and University, Milan, Italië. [3]Dept. of Gastroenterology and Hepatology, University Hospitals Gasthuisberg, University of Leuven, Leuven, België. [4]Dept. of Gastroenterology and Hepatology, IRCCS San Raffaele Scientific Institute, Milan, Italië. [5]Dept. of Gastroenterology and Hepatology, University Hospitals Gasthuisberg, University of Leuven, Leuven, België.

14.48 Fluorescent labelled vedolizumab for real-time visualization and quantification of local drug distribution and pharmacodynamics in inflammatory bowel diseases during endoscopy (p. 115)

R.Y. Gabriëls[1], A.M. van der Waaij[1], M.D. Linssen[2], G. Kats-Ugurlu[3], D.J. Robinson[4], G. Dijkstra[5], W.B. Nagengast[1], [1]Dept. of Gastroenterology and Interventional Endoscopy, UMCG, Groningen, Nederland. [2]Pharmacology and Toxicology, UMCG, Groningen, Nederland. [3]Dept. of Pathology, UMCG, Groningen, Nederland. [4]Dept. of Otorhinolaryngology and Head and Neck Surgery, Erasmus University, Groningen, Nederland. [5]Dept. of Gastroenterology and Hepatology, UMCG, Groningen, Nederland.

15.00 Einde van dit programma onderdeel. Het volgende programma start om 15.30 uur. Intussen kunt u de gemodereerde postersessies volgen.

Abstractsessie Sectie - Gastrointestinale Oncologie **vanuit de Virtual studio**

Voorzitters: *T.M. Bisseling en L.G. van Vlerken*

14.00 Incidence of pancreatic cancer within pancreatic cystic neoplasm: 6-year reults from a nationwide pathology database (p. 116)

M. Gorris[1], N.C.M. Van Huijgevoort[1], J.E. Van Hooft[8], A. Farina Sarasqueta[2], L.A.A. Brosens[3], H. Van Santvoort[4], B. Groot Koerkamp[5], M. Bruno[6], M.G. Besselink[7], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [2]Dept. of Pathology, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [3]Dept. of Pathology, University Medical Centre Utrecht, Utrecht University, Utrecht, Nederland. [4]Dept. of Gastrointestinal Surgery, University Medical Centre Utrecht, Utrecht University, Utrecht, Nederland. [5]Dept. of Gastrointestinal Surgery, Erasmus MC Cancer Institute, University Medical Center Rotterdam, Rotterdam, Nederland. [6]Dept. of Gastroenterology and Hepatology, Erasmus MC Cancer Institute, University Medical Center Rotterdam, Rotterdam, Nederland. [7]Dept. of Gastrointestinal Surgery, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [8]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland.

14.07 Computer-Aided Decision support and 3D modelling in pancreatic cancer (p. 117)

D.W.M. Diederik Rasenberg[1], M. Mark Ramaekers [2], I. Igor Jacobs[1], J.R. . Jon Pluyter [1], L.J.F. Luc Geurts[1], B. Bin Yu[1], J. Joost Nederend[3], F. Frank Willem Jansen[4], J. Jenny Dankelman[5], J.S.D. Sven Mieog[6], M.D.P. Misha Luyer[2], [1]Philips , Eindhoven, Nederland. [2]Dept. of Surgery, Catharina ziekenhuis, Eindhoven, Nederland. [3]Dept. of Radiology, Catharina ziekenhuis, Eindhoven, Nederland. [4]Dept. of Gynaecologic Oncology, Leiden University Medical Centre, Leiden, Nederland. [5]Delft University of Technology, Delft, Nederland. [6]Dept. of Surgery, Leiden University Medical Centre, Leiden, Nederland.

14.14 Mucinous type gastric cancer: a distinct entity (p. 118)

I.A. Caspers[1], H.D. Biesma[2], K. Sikorska[3], E. Meershoek-Klein Kranenbarg[4], H.H. Hartgrink[5], J.W. Van Sandick[6], C.J.H. Van de Velde[5], M. Verheij[7], R.H.A. Verhoeven[8], A. Cats[9], N.C.T. Van Grieken[2], [1]Dept. of Gastroenterology, NKI Antoni van Leeuwenhoek, Amsterdam, Nederland. [2]Dept. of Pathology, Amsterdam UMC - locatie VUmc, Amsterdam, Nederland. [3]Dept. of Biometrics, NKI Antoni van Leeuwenhoek, Amsterdam, Nederland. [4]Dept. of Biometrics, LUMC, Leiden, Nederland. [5]Dept. of Surgery, LUMC, Leiden, Nederland. [6]Dept. of Surgery, NKI Antoni van Leeuwenhoek, Amsterdam, Nederland. [7]Dept. of Radiotherapy, Radboud UMC, Nijmegen, Nederland. [8]Dept. of Research & Development, Integraal Kankercentrum Nederland (IKNL), Utrecht, Nederland. [9]Dept. of Gastrointestinal Oncology, NKI Antoni van Leeuwenhoek, Amsterdam, Nederland.

14.21 Diagnostic yield using a FIT-based risk model was not better than FIT only: a randomized controlled trial in the second round of the Dutch colorectal cancer screening programme (p. 119)

T.L. Kortlever[1], M. van der Vlugt[1], F.A.M. Duijkers[1], A.A.M. Masclee[2], R.A. Kraaijenhagen[3], V.M.C.W. Spaander[4], I. Lansdorp-Vogelaar[5], P.M.M. Bossuyt[6], E. Dekker[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, locatie AMC, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center+, Maastricht, Nederland. [3]NIPED, Amsterdam, Nederland. [4]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland. [5]Dept. of Public Health, Erasmus University Medical Center, Rotterdam, Nederland. [6]Dept. of Epidemiology and Biostatistics, Amsterdam UMC, locatie AMC, Amsterdam, Nederland.

Lezing in het kader van de NVH Distinguished Hepatology Award

Voorzitters: *T.M. Bisseling en L.G. van Vlerken*

14.30 Immunity to HBV and biomarkers strategies for liver cancer prediction
Dr. P.A. Boonstra, immunoloog, Erasmus MC, Rotterdam

15.00 Einde van dit programmaonderdeel. Het volgende programma start om 15.30 uur. Intussen kunt u de gemodereerde postersessies volgen.

Postersessie III

Voorzitter: *L.P.S. Stassen*

15.00 Perioperative outcomes, survival and quality of life after distal versus total D2-gastrectomy for gastric cancer: a side-study of the multicenter randomized LOGICA-trial (p. 120)
R. van Hillegersberg[1], C. de Jongh[1], A. van der Veen[1], L.A.A. Brosens[2], G.A.P. Nieuwenhuijzen[3], J.H.M.B. Stoot[4], J.P. Ruurda[1], [1]Dept. of Surgery, University Medical Center Utrecht, Utrecht, Nederland. [2]Dept. of Pathology, University Medical Center Utrecht, Utrecht, Nederland. [3]Dept. of Surgery, Catharina Hospital Eindhoven, Eindhoven, Nederland. [4]Dept. of Surgery, Zuyderland Medical Center, Sittard, Nederland.

15.05 The course of pain and dysphagia after radiofrequency ablation for Barrett's esophagus related neoplasia (p. 121)
A. Overwater[1], E.J. Schoon[2], J.J.G.H.M. Bergman[3], R.E. Pouw[3], S.G. Elias[4], B.L.A.M. Weusten[1], [1]Dept. of Gastroenterology and Hepatology, St. Antonius Ziekenhuis, Nieuwegein, Universitair Medisch Centrum Utrecht, Utrecht, Nederland. [2]Dept. of Gastroenterology and Hepatology, Catharina Ziekenhuis, Eindhoven, Nederland. [3]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [4]Dept. of Epidemiology and Biostatistics, Julius Centrum voor Gezondheidswetenschappen en Eerstelijnsgeneeskunde, UMCU, Utrecht, Nederland.

15.10 Predictors of health related quality of life and associated symptoms in patients with Barrett Esophagus (p. 122)
M.C.M. van der Ende- van Loon[1], P.T. Nieuwkerk [2], R.A.B. Oude Nijhuis [3], S.H.C. van Stiphout [4], R.C.H. Scheffer [5], R.J.J. de Ridder [6], R.E. Pouw [3], A. Alkhalaf [7], B.L.A.M. . Weusten [8], W.L. Curvers [9], E.J. Schoon [9], [1]Dept. of Gastroenterology, Catharina Hospital, EINDHOVEN, Nederland. [2]Dept. of Physiology, Academic Medical Center, Amsterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Academic Medical Center, Amsterdam, Nederland. [4]Dept. of Gastroenterology and Hepatology, Elkerliek Hospital, Helmond, Nederland. [5]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Hospital, Den Bosch, Nederland. [6]Dept. of Gastroenterology and Hepatology, Maastricht University, Maastricht, Nederland. [7]Dept. of Gastroenterology and Hepatology, Isala Hospital, Zwolle, Nederland. [8]Dept. of Gastroenterology and Hepatology, St. Antonius Hospital, Nieuwegein, Nederland. [9]Dept. of Gastroenterology and Hepatology, Catharina Ziekenhuis, Eindhoven, Nederland.

15.15 Comparison of proactive and conventional treatment of anastomotic leakage in rectal cancer surgery; a multicenter retrospective cohort series (p. 123)

K. Talboom[1], N.G. Greijdanus[2], N. Brinkman[1], R.D. Blok[1], S.X. Roodbeen[1], C.Y. Ponsioen[3], P.J. Tanis[4], W.A. Bemelman[1], C. Cunningham[5], F.B. de Lacy[6], R. Hompes[1], [1]Dept. of Surgery, Amsterdam UMC, locatie AMC, Amsterdam, Nederland. [2]Dept. of Surgery, Radboudumc, Nijmegen, Nederland. [3]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, locatie AMC, Amsterdam, Nederland. [4]Dept. of Surgery, Amsterdam UMC, location VUmc, Amsterdam, Nederland. [5]Dept. of Gastrointestinal Surgery, Churchill Hospital, Oxford University Hospitals NHS Foundation Trust, Oxford, Verenigd Koninkrijk. [6]Dept. of Gastrointestinal Surgery, Hospital Clinic of Barcelona, University of Barcelona, Barcelona, Spanje.

15.20 Donor-recipient genetic mismatch is associated with acute cellular rejection after liver transplantation (p. 124)

L.M. Nieuwenhuis[1], Y. Li[2], A.J.A. Lambeck[3], S. Hu[2], R. Gacesa[2], M.D. Voskuil[2], B.G. Hepkema[3], B.H. Jansen[2], H. Blokzijl[2], H.J. Verkade[4], M.C. Heuvel[5], R.K. Weersma[2], R.J. Porte[1], E.A.M. Festen[2], V.E. de Meijer[1], [1]Dept. of Surgery, University Medical Center Groningen, Groningen, Nederland. [2]Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Nederland. [3]Dept. of Immunology, University Medical Center Groningen, Groningen, Nederland. [4]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, University Medical Center Groningen, Groningen, Nederland. [5]Dept. of Pathology, University Medical Center Groningen, Groningen, Nederland.

15.25 Early Mobilization after Esophageal Cancer Surgery (p. 125)

N. Schuring[1], S.J.G. Geelen[2], M.I. van Berge Henegouwen [1], S.C.M. Steenhuizen[2], M. van der Schaaf[3], M. van der Leeden[3], S.S. Gisbertz[1], [1]Dept. of Gastrointestinal Surgery, Amsterdam UMC, Amsterdam, Nederland. [2]Dept. of Physiotherapy, Amsterdam UMC, Amsterdam, Nederland. [3]Amsterdam UMC, Amsterdam, Nederland.

Postersessie IV

Voorzitter: *A.A. te Velde*

15.00 Identifying CES-1 positive myeloid cells with mass cytometry as a potential therapeutic target for Crohn's disease (p. 126)

I.L. Hageman[1], A.M.I.M. Elfiky[2], M. Becker[2], V. Joustra[2], C. Buskens[3], A.Y.F. . Li Yim[2], T.B.M. Hakvoort[2], J. Verhoeff[2], G.R.A.M. D'Haens[2], M. Wildenberg[2], W. de Jonge[2], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Tytgat Institute for Liver and Intestinal research, Amsterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [3]Dept. of Surgery, Amsterdam UMC, Amsterdam, Nederland.

15.05 Added value of secretin during magnetic resonance imaging to identify ductal communication in pancreatic cystic neoplasms (image-S): prospective study (p. 127)

M. Gorris[1], J.E. Van Hooft[4], N.C.M. Van Huijgevoort[1], M.G. Besselink[2], F. Struik[3], M.R. Engelbrecht[3], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [2]Dept. of Gastrointestinal Surgery, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [3]Dept. of Radiology, Amsterdam UMC, University of Amsterdam, Amsterdam, Nederland. [4]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland.

15.10 Proteomic analyses do not reveal subclinical inflammation in fatigued patients with quiescent inflammatory bowel disease (p. 128)

A.R. Bourgonje[1], S.J. Wichers[1], S. Hu[1], H.M. van Dullemen[1], M.C. Visschedijk[1], K.N. Faber[1], E.A.M. Festen[1], G. Dijkstra[1], J.N. Samsom[2], R.K. Weersma[1], L.M. Spekhorst[1], [1]Dept. of Gastroenterology and Hepatology, University of Groningen, University Medical Center Groningen, Groningen, Nederland. [2]Dept. of Pediatrics, Erasmus University Medical Center, Rotterdam, Nederland.

15.15 Providing the pathologist with clinical information improves the reading and interpretation of EUS-guided tissue acquisition of solid pancreatic lesions (p. 129)

H.M. Schutz[1], R. Quispel[1], M.F. van Velthuysen[2], M.J. Bruno[3], L.M.J.W. van Driel[3], [1]Dept. of Gastroenterology and Hepatology, Reinier de Graaf Gasthuis, Delft, Nederland. [2]Dept. of Pathology, Erasmus University Medical Center, Rotterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland.

15.20 Identification and functional analysis of stromal subsets in experimental IBD mouse models (p. 130)

Z. Zhou, L.G. Plug, E.S.M. de Jonge-Muller, L.M. van de Beek, L. Brands, A.E. van der Meulen-de Jong, L.J.A.C. Hawinkels, M.C. Barnhoorn, Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland.

15.25 Prophylactic medication for the prevention of endoscopic recurrence in Crohn's disease: a prospective study based on clinical risk stratification (p. 131)

J.H.C. Arkenbosch[1], E.M.J. Beelen[1], G. Dijkstra[2], M. Romberg-Camps[3], M. Duijvestein[4], F. Hoentjen[4], S. van der Marel[5], P.W.J. Maljaars[6], S. Jansen[7], N.K.H. de Boer[8], R.L. West[9], C.S. Horjus[10], L.P.S. Stassen[11], F. van Schaik[12], O. van Ruler[13], B.J.H. Jharap[14], N.S. Erler[15], M. Doukas[16], A.H. Ooms[17], G. Kats-Ugurlu[18], C.J. van der Woude[1], A.C. de Vries[1], [1]Dept. of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, UMCG, Groningen, Nederland. [3]Dept. of Gastroenterology and Hepatology, Zuyderland ziekenhuis, Sittard-Geleen, Namibië. [4]Dept. of Gastroenterology and Hepatology, Radboud UMC, Nijmegen, Nederland. [5]Dept. of Gastroenterology and Hepatology, MC Haaglanden, Den Haag, Nederland. [6]Dept. of Gastroenterology and Hepatology, LUMC, Leiden, Nederland. [7]Dept. of Gastroenterology and Hepatology, RDGG, Delft, Nederland. [8]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland. [9]Dept. of Gastroenterology and Hepatology, Franciscus Gasthuis & Vlietland, Rotterdam, Nederland. [10]Dept. of Gastroenterology and Hepatology, Rijnstate ziekenhuis, Arnhem, Nederland. [11]Dept. of Surgery, MUMC, Maastricht, Nederland. [12]Dept. of Gastroenterology and Hepatology, UMCU, Utrecht, Nederland. [13]Dept. of Surgery, Ijsselland ziekenhuis, Capelle a/d Ijssel, Nederland. [14]Dept. of Gastroenterology and Hepatology, Meander MC, Amersfoort, Nederland. [15]Dept. of Biostatistics, Erasmus MC, Rotterdam, Nederland. [16]Dept. of Pathology, Erasmus MC, Rotterdam, Nederland. [17]Dept. of Pathology, Pathan BV, Rotterdam, Nederland. [18]Dept. of Pathology, UMCG, Groningen, Nederland.

NVH symposium Cholestase: Differentieel Diagnostisch Denken en Doen

Voorzitters: *E.M.M. Kuiper en A.J.P. van der Meer*

15.30	Cholestase: Hoe pak ik het aan? *Dr. W.J. Lammers, MDL-arts, Erasmus MC, Rotterdam*
15.45	Dilemma van de dominante stenose *Dr. C.Y. Ponsioen, MDL-arts, Amsterdam UMC, AMC*
15.55	Discussie
16.00	Genetica en galwegen *Dr. E.S. de Vries, MDL-arts, LUMC, Leiden*
16.10	Vooruit kijken: PBC en PSC *Dr. A.J.P. van der Meer, MDL-arts, Erasmus MC, Rotterdam*
16.25	Discussie
16.30	Einde van de sessie

Voorzitters: *R.C.J. Beckers en P.F. Vollebregt*

15.30 Peroral endoscopic myotomy versus pneumatic dilation in treatment-naive patients with achalasia: 5-year results of a randomized clinical trial (p. 132)
T. Kuipers[1], F.A. Ponds[1], P. Fockens[1], B.A.J. Bastiaansen[1], A. Lei[1], H. Neuhaus[2], T. Benya[2], J. Kandler[2], T. Frieling[3], P.W.Y. Chiu[4], J.C.Y. Wu[5], V.W.Y. Wong[4], G. Costamagna[6], P. Familiari[6], P.J. Kahrilas[7], J.E. Pandolfino[7], A.J.P.M. Smout[1], A.J. Bredenoord[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC locatie AMC, Amsterdam, Nederland. [2]Dept. of Gastroenterology, Evangelisches Krankenhaus Düsseldorf, Düsseldorf, Duitsland. [3]Dept. of Gastroenterology, Helios Klinikum Krefeld, Düsseldorf, Duitsland. [4]Dept. of Surgery, The Chinese University of Hong Kong, Hong Kong, Hongkong. [5]Dept. of Medicine, The Chinese University of Hong Kong, Hong Kong, Hongkong. [6]Dept. of Endoscopy, Agostino Gemelli University Hospital, Universita Cattolica del Sacro Cuore, Rome, Italië. [7]Dept. of Gastroenterology, Feinberg School of Medicine, Northwestern University, Chicago, Verenigde Staten.

15.37 Poor adherence to medical and dietary treatments in adult patients with eosinophilic esophagitis (p. 133)
M.L. Haasnoot, S. Safi, A.J. Bredenoord, Dept. of Gastroenterology and Hepatology, Amsterdam UMC, Amsterdam, Nederland.

15.44 Discrete choice experiment reveals strong preference for dietary treatment among patients with irritable bowel syndrome (p. 134)
R. Sturkenboom[1], D. Keszthelyi[1], A.A.M. Masclee[1], B.A.B. Essers[2], [1]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center+, Maastricht, Nederland. [2]Dept. of Clinical Epidemiology and Medical Technology Assessment (KEMTA) , Maastricht University Medical Center+, Maastricht, Nederland.

15.51 Dietary advanced glycation endproducts and intestinal inflammation in inflammatory bowel disease and irritable bowel syndrome patients (p. 135)
M.C.G. de Graaf[1], J.L.J.M. Scheijen[2], C.E.G.M. Spooren[1], Z. Mujagic[1], M.J. Pierik[1], D. Keszthelyi[1], C.G. Schalkwijk[2], D.M.A.E. Jonkers[1], [1]Dept. of Gastroenterology and Hepatology, Maastricht University Medical Center+ / Maastricht University, Maastricht, Nederland. [2]Dept. of Internal Medicine , Maastricht University Medical Center+ / Maastricht University, Maastricht, Nederland.

15.58 Placebo response in pharmacological trials in patients with functional dyspepsia – a systematic review and meta-analysis (p. 136)
M. Bosman[1], F. Smeets[2], S. Elsenbruch[3], J. Tack[4], M. Simrén[5], N. Talley[6], B. Winkens[7], A. Masclee[2], D. Keszthelyi[2], [1]Dept. of Gastroenterology and Hepatology, Maastricht Universitair Medisch Centrum, Maastricht, Nederland. [2]Dept. of Gastroenterology and Hepatology, Maastricht Universitair Medisch Centrum, Maastricht, Nederland. [3]Dept. of Medical Psychology, Ruhr University Bochum, Bochum, Duitsland. [4]Dept. of Gastroenterology and Hepatology, University Hospital Leuven, Leuven, België. [5]University of Gothenburg, Gothenburg, Zweden. [6]University of Newcastle, Newcastle, Australië. [7]Maastricht University, Maastricht, Nederland.

16.05 Antibiotic resistance of Helicobacter pylori in primary care (p. 137)
G. van den Brink[1], L.M. Koggel[2], J.J.H. Hendriks[2], P.D. Siersema[2], M.G.J. de Boer[3], M.E. Numans[1], [1]Dept. of Public Health, Leiden University Medical Center, Leiden, Nederland. [2]Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Nederland. [3]Dept. of Infectious Diseases, Leiden University Medical Center, Leiden, Nederland.

16.12 Prediction models for celiac disease development in children from high-risk families: data from long term follow up of the PreventCD cohort (p. 138)

C.R. Meijer-Boekel[1], R. Auricchio[2], H. Putter[3], G. Castillejo[4], P. Crespo[5], J. Gyimesi[6], C. Hartman[7], S. Kolacek[8], S. Koletzko[9], I. Korponay-Szabo[10], E. Martinez-Ojinaga[11], I. Polanco[11], C. Ribes-Koninckx[12], R. Shamir[7], H. Szajewska[13], R. Troncone[2], V. Villanacci[14], K. Werkstetter[9], M.L. Mearin[1], [1]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, Leiden University Medical Centre, Leiden, Nederland. [2]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, University Federico II Naples, Naples, Italië. [3]Dept. of Mathematics and Statistics, Leiden University Medical Centre, Medical Statistics, Leiden, Nederland. [4]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, Hospital Universitario Sant Joan de Reus, Reus, Spanje. [5]Dept. of Health Services Research, European University Miguel de Cervantes, ADViSE, Valladolid, Spanje. [6]Dept. of Pediatrics, Heim Pál National Paediatric Institute Budapest, Budapest, Hongarije. [7]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, Sackler Faculty of Medicine Tel Aviv University, Tel Aviv, Israël. [8]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, Zagreb University, Zagreb, Kroatië. [9]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, Ludwig Maximilian's University Munich Medical Center, Munich, Duitsland. [10]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, Heim Pál National Paediatric Institute Budapest, Budapest, Hongarije. [11]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, La Paz University Hospital, Madrid, Spanje. [12]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, La Fe Hospital, Valencia, Spanje. [13]Dept. of Pediatrics, Medical University of Warsaw, Warsaw, Polen. [14]Dept. of Pathology, ASST-Spedali Civili Brescia, Brescia, Italië.

16.19 Early diagnosis of coeliac disease by case-finding at the preventive youth health care centres in The Netherlands (Glutenscreen) preliminary results (p. 139)

C.R. Meijer[1], L. Smit[2], F. van Overveld[3], M.L. Mearin[1], [1]Dept. of Pediatric Gastroenterology Hepatology and Nutrition, Leiden University Medical Centre, Leiden, Nederland. [2]Preventive Youth Health Care Centres, Kennemerland, Nederland. [3]Dutch Coeliac Patients Society, Naarden, Nederland.

16.30 Einde van de sessie

Break-out sessie

Voorzitter: *L.M.G. Moons en W.B. Nagengast*

16.30 Diagnose in beeld – potpourri van endoscopische magie

Interactief programma met endoscopische beelden over bijzondere omstandigheden of beelden tijdens het endoscopisch onderzoek. Deelnemers kunnen online hun diagnose of te volgen beleid geven, waarna de juiste diagnose zal worden toegelicht.

17.00 Einde van de sessie

Abstractsessie - Sectie Experimentele Gastroenterologie **vanuit de Virtual studio**

Voorzitter: *L.J.A.C. Hawinkels en A.A. te Velde*

17.00 Battle

17.17 In-depth characterization of the serum antibody epitope repertoire in inflammatory bowel disease using high-throughput phage-displayed immunoprecipitation sequencing (p. 140)

A.R. Bourgonje[1], S. Andreu-Sánchez[2], T. Vogl[3], S. Hu[1], A. Vich Vila[1], S. Leviatan[3], A. Kurilshikov[2], S. Klompus[3], I.N. Kalka[3], H.M. van Dullemen[1], A. Weinberger[3], M.C. Visschedijk[1], E.A.M. Festen[1], K.N. Faber[1], C. Wijmenga[2], G. Dijkstra[1], E. Segal[3], J. Fu[2], A. Zhernakova[2], R.K. Weersma[1], [1]Dept. of Gastroenterology and Hepatology, University of Groningen, University Medical Center Groningen, Groningen, Nederland. [2]Dept. of Genetics, University of Groningen, University Medical Center Groningen, Groningen, Nederland. [3]Dept. of Molecular Cell Biology & Immunology, Weizmann Institute of Science, Rehovot, Israël.

17.23 The human peritoneal immune system identified using single-cell RNA sequencing and deep immunophenotyping (p. 141)

J. Saris[1, 5], L. Xiong[1], A.Y.F. Li Yim[1,7,8], J. Verhoeff[1,6,9], F.A. Vieira Braga[2,10], S. Frigerio[1], J.B. Tuynman[3], S.S. Gisberz[3], S. Derks[4], M.E. Wildenberg[1], G.R.A.M. D'Haens[5,11], J.J. Garcia Vallejo[6,9], L. Vermeulen[2,10], J. Grootjans[1,5], [1]Tytgat Institute for Liver and Intestinal Research, Amsterdam UMC, location AMC, Amsterdam, Nederland. [2]Laboratory for Experimental Oncology and Radiobiology (LEXOR), Amsterdam UMC, location AMC, Amsterdam, Nederland. [3]Dept. of Gastrointestinal Surgery, Amsterdam UMC, location VUmc, Amsterdam, Nederland. [4]Dept. of Medical Oncology, Amsterdam UMC, location VUmc, Amsterdam, Nederland. [5]Dept. of Gastroenterology, Amsterdam UMC, location AMC, Amsterdam, Nederland. [6]Dept. of Molecular Cell Biology & Immunology, Amsterdam UMC, location VUmc, Amsterdam, Nederland. [7]Dept. of Clinical Genetics, Genome Diagnostics Laboratory, Amsterdam. [8]Reproduction & Development, Amsterdam UMC, location AMC, Amsterdam, The Netherlands. [9]Amsterdam institute for infection and immunity, Amsterdam, Netherlands.[10]Center for Experimental Molecular Medicine (CEMM), Amsterdam UMC, location AMC, Amsterdam, The Netherlands. [11]Dept. of Gastroenterology and Hepatology, Tytgat Institute, Amsterdam, The Netherlands.

17.29 Selective upregulation of Cathepsin H in cancer-associated fibroblasts in early-stage colorectal cancer (p. 142)

H. Dang[1], T.J. Harryvan[1], N.F.C.C. De Miranda[2], J.C.H. Hardwick[1], J.J. Boonstra[1], L.J.A.C. Hawinkels[1], [1]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland. [2]Dept. of Pathology, Leiden University Medical Center, Leiden, Nederland.

17.35 Cancer-associated fibroblasts in T1 colorectal cancer promote matrix remodeling and tumor organoid expansion (p. 143)

H. Dang[1], T.J. Harryvan[1], C. Liao[2], E.H.J. Danen[2], N.F.C.C. De Miranda[3], J.C.H. Hardwick[1], J.J. Boonstra[1], L.J.A.C. Hawinkels[1], [1]Dept. of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Nederland. [2]Leiden Academic Centre for Drug Research, Leiden, Nederland. [3]Dept. of Pathology, Leiden University Medical Center, Leiden, Nederland.

17.42 Battle winner and closure

Symposium Sectie Gastrointestinale Endoscopie: Chromoendoscopy **vanuit de Talkshow studio**

Voorzitter: *A.M. van Berkel en E.J. Schoon*

17.00 The role of chromoendoscopy in IBD surveillance
Prof. dr. B. Oldenburg, Gastroenterologist, Utrecht University Medical Center

17.30 Chromoendoscopy, including Lugol staining, in high-risk patients for esophagel squamous cell cancer. Which patients and how to screen?
Dr. A. Koch, gastroenterologist, Erasmus MC, Rotterdam

18.00 Bekendmaking winnaar Inside Art en afsluiting DDD
Prof. dr. C.J. van der Woude, voorzitter NVGE

CT-colonography in Fecal Immunochemical Test Positive Patients in a Colorectal Cancer Screening Program – Yield and Incidence of Interval Carcinomas

S. Moen[1], F.E. Marijnissen[1], J.S. Terhaar Sive Droste[2], W.H. De Vos tot Nederveen Cappel[3], M.B.W. Spanier[4], J.F. Huisman[3], E. Dekker[5], J. Stoker[6], E.J. Kuipers[1], M.G.J. Thomeer[7], M.C.W. Spaander[1], [1]Dept. of Gastroenterology and Hepatology, Erasmus MC University Medical Center, Rotterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Jeroen Bosch Hospital, 's Hertogenbosch, Nederland. [3]Dept. of Gastroenterology and Hepatology, Isala Hospital, Zwolle, Nederland. [4]Dept. of Gastroenterology and Hepatology, Rijnstate Hospital, Arnhem, Nederland. [5]Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Center location AMC, Amsterdam, Nederland. [6]Dept. of Radiology and Nuclear Medicine, Amsterdam University Medical Centers, Amsterdam, Nederland. [7]Dept. of Radiology, Erasmus MC University Medical Center, Rotterdam, Nederland.

Background: In the Dutch colorectal cancer (CRC) screening program, fecal immunochemical test (FIT) positive screenees are offered CT-colonography (CTC) when colonoscopy is not possible due to contraindications or patient preferences. Literature on CTC screening in FIT-positives is scarce and incidence of interval carcinomas for this population is yet unknown.
Methods: In this retrospective study, we assessed yield and incidence of interval carcinomas in FIT-positive screenees who directly underwent CTC between 2014-2019 in the Dutch CRC screening program. Centers with >50 CTC's were approached for data collection. Data were linked with the National Cancer Registry to identify interval carcinomas.
Results: Out of 2983 FIT-positive screenees (mean age 68.2 years) scheduled for CTC, 2794 (93.7%) underwent CTC. Most advanced lesion detected by CTC was CRC in 160 (5.7%), polyps >10mm in 533 (19.1%) and polyps <10mm in 478 (17.1%) screenees. A total of 987 (35.3%) additional endoscopies were performed. Histologically confirmed advanced neoplasia was present in 587 (21%) screenees. Most advanced histologically confirmed lesion was CRC in 109 (3.9%) and advanced adenoma in 478 (17.1%) screenees. Two CTC detected CRC's were confirmed by radiological imaging and four CTC detected CRC's did not receive further examination. A total of 16 (0.6%) interval carcinomas occurred after a median follow-up of 49 months (range 11-92).
Conclusion: CTC detected advanced neoplasia in only 21% of FIT-positive screenees and a substantial proportion of post-CTC interval carcinomas was found. This underlines the need for a structured quality assurance program for CTC's performed in FIT-positive screenees.

Proximal Serrated Polyp Detection Rate and Interval Post-Colonoscopy Colorectal Cancer Risk

D.E.F.W.M. Van Toledo[1], J.E.G. IJspeert[1], P.M.M. Bossuyt[2], M.E. Van Leerdam[3], M. Van Der Vlugt[1], I. Lansdorp-Vogelaar[4], M.C.W. Spaander[5], E. Dekker[1], [1]Dept. of Gastroenterology and Hepatology, Amsterdam UMC, location AMC, Amsterdam, Nederland. [2]Dept. of Epidemiology and Biostatistics, Amsterdam UMC, location AMC, Amsterdam, Nederland. [3]Dept. of Gastroenterology and Hepatology, Netherlands Cancer Institute-Antoni Van Leeuwenhoek, Amsterdam, Nederland. [4]Dept. of Public Health, Erasmus University Medical Center, Rotterdam, Nederland. [5]Dept. of Gastroenterology and Hepatology, Erasmus University Medical Center, Rotterdam, Nederland.

Background: The adenoma detection rate (ADR) is a well-established colonoscopy quality indicator and inversely associated with interval post-colonoscopy colorectal cancer (PCCRC) incidence. However, interval PCCRCs frequently develop from serrated polyps. The proximal serrated polyp detection rate (PSPDR) was advocated as quality indicator, but its association with interval PCCRCs has not yet been studied.
Methods: Using colonoscopy data from the Dutch fecal immunochemical test (FIT) based CRC screening program between 2014 and 2020, we evaluated the association between endoscopists' individual PSPDR and their patients' risk of interval PCCRC with a multilevel Cox proportional-hazard regression analysis. We additionally evaluated the risk of interval PCCRC for endoscopists with a PSPDR and ADR above the median versus endoscopists with either one or both parameters below the median. Correlation between PSPDR and ADR was tested using the Spearman correlation coefficient.
Results: In total, 277,555 colonoscopies performed by 441 endoscopists were included. Median PSPDR was 11.9% (range, 1-29%). Median ADR was 66.3% (range, 43.0 - 83.2%). During a median follow up of 33 months, 305 interval PCCRCs were detected. Each percent higher PSPDR of endoscopists was associated with a 7% lower risk of interval PCCRC (HR 0.93, CI95% 0.90-0.95). The adjusted hazard ratios for interval PCCRC incidence, according to quintiles of PSPDR performance, from lowest to highest, were 0.95 (95% CI, 0.70 to 1.29), 0.74 (95% CI, 0.53-1.03), 0.42 (95% CI, 0.28 to 0.64) and 0.34 (95% CI, 0.21 to 0.55), as compared to the endoscopists in the lowest quintile. Compared to endoscopists with a PSPDR >11.9% and ADR >66.3%, the hazard ratio of interval PCCRC for endoscopists with a low-PSPDR/high ADR was 1.79 (CI95%, 1.22-2.63), for high-PSPDR/low-ADR 1.97 (95% CI, 1.19-3.24) and for low-PSPDR/low-ADR 2.55 (95% CI, 1.89-3.45). Correlation between PSPDR and ADR was considered moderate ($r=0.59$; $p<0.001$).
Conclusion: The PSPDR of endoscopists is inversely associated with interval PCCRC incidence. The highest protective effect was observed when both the PSPDR and ADR of endoscopists were above the median. Implementation of monitoring PSPDR, in addition to ADR, could therefore contribute to optimize cancer prevention in FIT-based screening programs.

Advanced-stage CRC incidence patterns related to the phased implementation of the CRC screening program in the Netherlands

E.C.H. Breekveldt[1], E. Toes-Zoutendijk[1], M.C.W. Spaander[2], L. de Jonge[1], H.J. van de Schootbrugge-Vandermeer[1], A.J. van Vuuren[2], F.J. van Kemenade[3], C. Ramakers[4], E. Dekker[5], I.D. Nagtegaal[6], M.E. van Leerdam[7], I. Lansdorp-Vogelaar[1], [1]Dept. of Public Health, Erasmus MC, Rotterdam, Nederland. [2]Dept. of Gastroenterology and Hepatology, Erasmus MC, Rotterdam, Nederland. [3]Dept. of Pathology, Erasmus MC, Rotterdam, Nederland. [4]Dept. of Clinical Chemistry, Erasmus University Medical Center, Rotterdam, Nederland. [5]Dept. of Gastroenterology and Hepatology, Amsterdam UMC - Locatie AMC, Amsterdam, Nederland. [6]Dept. of Pathology, Radboud UMC, Nijmegen, Nederland. [7]Dept. of Gastroenterology and Hepatology, Netherlands Cancer Institute - Antoni van Leeuwenhoek Ziekenhuis, Amsterdam, Nederland.

Background: From 2014 onwards, a fecal immunochemical test (FIT)-based colorectal cancer (CRC) screening program was gradually rolled out by birth cohort in the Netherlands. One of the first indicators of the potential effectiveness of a screening program is a shift towards detecting more early-stage CRC. Consequently, a decrease in advanced-stage CRC incidence is an indicator of this shift and thus the effectiveness of a program. We aimed to evaluate changes in advanced-stage CRC incidence by birth cohort to further strengthen the evidence for the association between the implementation of the screening program and the decrease in advanced-stage CRC incidence.
Methods: Data on advanced-stage (stage III and IV) CRC incidence in 2010-2019 were collected through the Netherlands Cancer Registry for individuals aged 55 and older. Crude rates of advanced-stage CRC incidence were calculated using data on population size per birth cohort from Statistics Netherlands. We compared observed advanced-stage CRC incidence with expected advanced-stage CRC incidence by extrapolating trend lines from before the introduction of screening in the respective birth cohorts.
Results: For birth cohorts first invited for screening in 2014, advanced-stage CRC incidence per 100,000 individuals increased from 94.1 in 2010 to 124.7 in 2013. In 2014, the incidence increased to 146.7 per 100,000 individuals (Figure 1). Thereafter, a decrease was observed. An even more pronounced pattern was observed for birth cohorts first invited for screening in 2015; advanced-stage CRC incidence per 100,000 individuals increased from 85.9 in 2010 to 110.6 in 2014. In 2015, advanced-stage CRC incidence substantially increased to 173.0 per 100,000 individuals, followed by a decrease to lower incidence than expected following the trend in 2010-2014. In 2017, again, a short increase was observed in the year these birth cohorts were re-invited. Similar trends were observed for birth cohorts invited in subsequent years, however the peak and decrease in advanced-stage CRC incidence occurred later, coinciding with the first invitation to the screening program.
Conclusion: During the first five years after the start of the screening program a temporary increase in advanced-stage CRC incidence was observed in all invited birth cohorts. This was followed by a decrease to below expected incidence levels. For birth cohorts that were invited later, this increase and decrease were observed at a later point in time, coinciding with the phased roll-out of the screening program. These findings support a causal relationship between the introduction of the screening program and a decrease in advanced-stage CRC incidence on population level.

Adenoma detection rate and risk of interval post-colonoscopy colorectal cancer in FIT-based screening

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Background: Adenoma detection rate (ADR) is an essential quality indicator for endoscopists performing colonoscopies in the context of colorectal cancer screening as it is associated with post-colonoscopy colorectal cancer (PCCRC) occurrence. Currently, data on ADRs of endoscopists performing colonoscopies in fecal immunochemical testing (FIT)-based screening, the most common screening method, is scarce. Also, the association between ADR and interval PCCRC (iPCCRC) has not been demonstrated in this setting. Patients and endoscopists may benefit from an ADR target that minimizes iPCCRC risk and represents adequate colonoscopy performance after positive FIT. We evaluated ADRs of a large group of endoscopists in the Dutch FIT-based CRC screening program and assessed the association between ADR and iPCCRC, aiming to propose an ADR target for endoscopists performing colonoscopy in FIT-positive individuals.
Methods: We assessed quality indicator performance and PCCRC incidence for all FIT-positives who underwent a first colonoscopy in 2014-2016 without a CRC diagnosis within the following 6 months. According to the WEO consensus statement, PCCRCs were classified as interval if the cancer was detected before the recommended next surveillance. Primary outcome, time to interval PCCRC diagnosis, was evaluated with a multivariable Cox proportional-hazards model that included endoscopists' ADR as a continuous covariate together with the patient specific risk factors age, gender and diagnosis at the first colonoscopy. The incidence of iPCCRCs was determined for endoscopists with different ADRs.
Results: In total, 383 endoscopists performed 233,945 colonoscopies in screenees with a positive FIT result. Endoscopists' ADR ranged between 42% and 78% with a median of 65%. We identified 211 interval PCCRCs. Each 1% increase in ADR was associated with a 7% decrease in iPCCRC risk (HR 0.93, $p<0.001$). For every 1,000 patients undergoing colonoscopy, 1.5 iPCCRC diagnoses after 5 years were expected for endoscopists with an ADR of 70%, compared to two, three or four for endoscopists with ADRs of 65%, 60% and 55%, respectively.
Conclusion: ADR is inversely associated with the risk of interval PCCRC in FIT-positive colonoscopies. This supports the use of ADR as important quality indicator for endoscopists performing colonoscopy in all CRC screening programs. Endoscopists performing colonoscopy in FIT-based screening should aim for markedly higher ADRs compared to primary colonoscopy. Based on our results the standard ADR target should be raised to 60%.

Stool-based testing to reduce the number of unnecessary surveillance colonoscopies: the MOCCAS study

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Background: The yield of colonoscopy surveillance after colorectal cancer (CRC) screening is limited. To lower patient burden and healthcare costs, there is a need to reduce colonoscopies in which no advanced neoplasia is detected. The MOlecular stool testing for Colorectal CAncer Surveillance (MOCCAS) study evaluates whether stool-based testing can be used to safely reduce the number of surveillance colonoscopies.

Methods: This cross-sectional study included patients aged 50-75 years with an indication for colonoscopy surveillance based on previous CRC, previous polypectomy of an adenoma or familial risk of CRC. Patients performed three stool tests before undergoing colonoscopy: the multi-target stool DNA test (mt-sDNA) (Cologuard, Exact Sciences, Madison, WI, USA) and two fecal immunochemical tests (FITs) (OC-Sensor, Eiken Chemical Co., Tokyo, Japan and FOB-Gold, Sentinel, Milan, Italy). Test characteristics as a function of test cut-off were determined for all three tests. We set up the validated Adenoma and Serrated pathway to Colorectal CAncer (ASCCA) model to simulate colonoscopy surveillance based on the 2020 European Society of Gastrointestinal Endoscopy (ESGE) post-polypectomy surveillance guideline as reference strategy. Then, we simulated stool-based surveillance strategies varying in test and test interval. We chose test cut-offs such that predicted effectiveness (CRC incidence and mortality) equaled effectiveness of the reference strategy. For all strategies, we calculated the number of colonoscopies and costs from a healthcare perspective.

Results: This study enrolled 3453 patients with a valid result for all three stool tests and complete colonoscopy, 65% of whom had polypectomy as surveillance indication. Colonoscopy surveillance (ESGE guideline) was predicted to result in 1669 colonoscopies per 1000 individuals under surveillance until end of surveillance or death. At equal effectiveness, both biennial (score ≥260) and triennial (score ≥185) mt-sDNA testing were predicted to reduce the number of colonoscopies with 32%, but at increased healthcare costs. All FIT-based surveillance strategies were predicted to safely reduce the number of colonoscopies (16-41%) and save costs. The largest reductions in colonoscopies were predicted for annual testing, with either OC-Sensor (36%, cut-off ≥18 µg/g) or FOB-Gold (41%, cut-off ≥32 µg/g).

Conclusion: Stool-based surveillance can be as effective as post-polypectomy colonoscopy surveillance, and safely reduce the number of colonoscopies by up to 41%. Surveillance with mt-sDNA was predicted to be more costly than colonoscopy surveillance, while FIT-based surveillance was predicted to save costs.

Pks+ E. coli status in stool as risk marker for improving colorectal cancer early detection

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Background: Recently, a particular strain of the common gut bacterium Escherichia coli (E. coli), that harbours pathogenicity island polyketide synthase (pks), has been identified as a potential new environmental risk factor for colorectal cancer (CRC). Pks+ E. coli produces a genotoxin called colibactin, which damages DNA. Human colonic epithelium organoids repeatedly infected with pks+ E. coli accumulate specific mutations, thereby producing a specific mutational signature that is also found in CRC tissues, affecting CRC-related genes, like APC. Exposure to pks+ E. coli therefore is likely to be associated with an increased risk of CRC. Risk stratification on the basis of environmental factors can potentially allow for optimization of existing CRC screening programs. Because pks+ E. coli is genotoxic for colorectal epithelial cells, we hypothesized that pks+ E. coli exposure increases the risk of advanced neoplasia (AN). The most straightforward measure of pks+ E. coli exposure would be a quantitative PCR (qPCR) performed in fecal immunochemical test (FIT) samples used in screening programs. The aim of our study is to evaluate the prevalence of pks+ E. coli and its association with AN in the average-risk population.
Methods: We analysed a large series (n=5024) of FIT left-over stool samples collected during screening; either in a colonoscopy screening trial (COCOS study, n=1043) or in a FIT screening study performed within the context of the Dutch national CRC screening program (FIT comparison study, n=3981). In the COCOS study, all participants performed a FIT and underwent colonoscopy whereas in the FIT comparison study, only FIT positive (cut-off 15 µg Hb/g feces) individuals underwent a colonoscopy. We optimized stool DNA isolation procedures and evaluated the prevalence of pks+ E. coli by qPCR. In addition, we investigated the association of pks+ E. coli positivity and AN during colonoscopy.
Results: Detection of pks+ E. coli by means of a qPCR was well feasible in FIT samples. Of 5024 FIT samples analysed, 4542 (90%) were E. coli positive and 1322 (26.3%) were pks+ E. coli positive. The prevalence of pks+ E. coli was similar between samples from individuals with CRC, advanced adenomas, non-advanced adenomas or controls, with 29.6%, 28.3%, 26.3% and 26.0%, respectively.
Conclusion: The prevalence of pks+ E. coli in a screening-age average-risk population was 26.3%, and was not different for individuals with AN compared to controls (p=0.10). These findings convincingly disqualify the straightforward option of taking a snapshot measurement of pks+ E. coli in FIT samples as a stratification biomarker for CRC-risk.

Inclusion of Advanced Serrated Polyps Increases the Yield of Colorectal Cancer Screening Based on Fecal Immunochemical Testing

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Background: Advanced serrated polyps (ASPs) have a comparable risk as advanced adenomas (AA) to develop into colorectal cancer (CRC). Nevertheless, the yield of most CRC screening programs is calculated based on AA and CRC detection only, not considering ASPs. Our objective was to assess the ASP detection rate within the Dutch fecal immunochemical test (FIT)-based screening program and to evaluate the increase in yield of screening if ASPs were included.
Methods: We analysed FIT-positive colonoscopies from the standardized Dutch screening database and national pathology database from 2014 until 2020. Colonoscopies that were incomplete or performed with insufficient bowel preparation were excluded. ASP was defined as any serrated polyp ≥10mm, sessile serrated lesion with dysplasia or traditional serrated adenoma. ASP detection rate was defined as the proportion of colonoscopies with at least one ASP. Stratified analyses were performed for sex, age and FIT-round. Original yield of screening was defined as the proportion of colonoscopies wherein either CRC or AA was detected. Updated definition for yield of screening was the proportion of colonoscopies wherein CRC, AA or ASP was detected. Stratified analyses were performed for sex and FIT-round.
Results: In total, 322,882 colonoscopies were included. Overall detection rate of ASPs was 5.9%. The detection rate of serrated polyps ≥10mm, sessile serrated lesions with dysplasia or traditional serrated adenomas were 4.1%, 1.3% and 0.9%, respectively. ASPs were more common among female than male individuals (6.3% vs 5.6%, $p<0.001$). ASP detection rates in individuals of 55-59, 60-64, 65-69 and 70+ years were 5.2%; 6.1%; 6.1%; 5.9% ($p<0.001$), respectively. Detection rates were similar across invitational screening rounds. The original yield of screening (without ASP) was 41.1% and increased to 43.8% using the updated definition. The difference in yield was 2.4% for individuals that underwent colonoscopy after a positive FIT in their first round of screening, which increased to 3.1% in individuals in successive screening rounds. The extra yield was higher in females than in males (3.2% vs 2.4%).
Conclusion: The detection rate and potential increase in yield of screening as found in this study demonstrate that ASPs are both common and clinically relevant. Adequate detection and registry of serrated polyps within colonoscopy screening cohorts could contribute to optimize CRC screening.

Acute toxicity of short course radiotherapy with prolonged interval to total mesorectal excision for rectal cancer

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Background: Prolonging the interval between short course radiotherapy (SCRT) and total mesorectal excision (TME) for rectal cancer increases tumor downsizing and the probability of organ-preservation. A prolonged interval has been reported to decrease postoperative complications compared to immediate surgery. It might however increase radiation toxicity. This study systematically evaluated patient-reported bowel dysfunction and physician-reported radiation toxicity during a prolonged interval between SCRT and TME for rectal cancer.
Methods: Consecutive patients treated with SCRT and prolonged interval (> 4 weeks) to TME for intermediate risk rectal cancer (T1-3(MRF-)N1M0 or T3(MRF-)N0M0), locally advanced rectal cancer (LARC; T3-4(MRF+)N0-2M0 or T1-4N2M0) and contra-indication for chemoradiation, or M1 rectal cancer were included. Repeated measurements of patient-reported bowel dysfunction (measured by the low anterior resection syndrome (LARS)-score) and physician-reported toxicity (diarrhea, fatigue, cystitis non-infective, dermatitis and urine-incontinence according to CTCAE) were done before start of SCRT (baseline), at completion of SCRT and (bi-)weekly until TME or 8 weeks after completion of SCRT.
Results: Fifty-one patients were included, of whom 31 (61%) were male and the median age was 67 (range: 44-91). The indication for SCRT with prolonged interval to TME was intermediate risk in 32 (63%), LARC in 5 (10%) and M1 in 14 (28%) patients. Median interval to TME was 68 days (IQR 52-93).
Both patient-reported bowel dysfunction and physician-reported radiation toxicity peaked at week 1-2 after completion of SCRT and gradually declined thereafter. Thirty-seven (79%) patients self-reported major bowel dysfunction at week 2 after completion of SCRT, declining to 8 (25%) patients at week 8. Physicians reported diarrhea grade 1-3 in 35 (74%) patients at week 2 (of whom 11 (23%) grade 3), declining to 9 (27%) patients with diarrhea grade 1-2 at week 8. One patient had his TME scheduled earlier due to persisting grade 3 diarrhea. Physicians reported fatigue grade 1-2 in 30 (64%) patients at week 2, cystitis grade 1-2 in 19 (43%) patients at week 1, dermatitis grade 1 in 8 (18%) patients at week 1 and urine-incontinence grade 1 in 2 (7%) patients at baseline.
Conclusion: No grade 4-5 radiation toxicity occurred during a prolonged interval between SCRT and TME for rectal cancer. Patient-reported major bowel dysfunction and physician-reported grade 1-3 diarrhea, grade 1-2 fatigue, grade 1 cystitis and grade 1 dermatitis were prevalent during 1-2 weeks after SCRT and gradually restored thereafter. Patient-reported major bowel dysfunction had a higher incidence than physician-reported diarrhea.

The natural course of untreated neoplasia in Barrett's Esophagus - a case-series

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Background: Endoscopic eradication therapy (EET) is the preferred treatment for Barrett's Esophagus (BE) with high-grade dysplasia (HGD) to prevent non-curable esophageal adenocarcinoma (EAC). Annual progression risks of about 7% for HGD are reported, however these studies originate from early 2000's, when lower quality equipment may have missed prevalent cancer. Accurate risk estimates for progression to EAC are crucial for rational use of EET. We aimed to evaluate the time between diagnosis of HGD in BE and development of clinically evident EAC.
Methods: In the Netherlands, BE-care is centralized in expert centers with a joint registry. We selected cases with HGD left untreated due to competing comorbidities or age and follow-up (FU) of at least 12 months. We retrospectively collected data from electronic patient files and by consultation with the general practitioner to determine vital FU. Endoscopic FU: time between detection of HGD (i.e. baseline) and the last endoscopy. Vital FU: time between baseline showing HGD and symptomatic EAC, death, or last data collection in those still alive. Primary outcome was time of progression to clinically evident EAC, defined as symptomatic EAC (dysphagia) or EAC-related death.
Results: From our database, 11 cases met inclusion criteria (n=2091; mean age 78, 64% male, 0.5% of database). At baseline, HGD was found in a visible lesion (9/11 pts; 82%) or in random biopsies from flat BE (2/11 pts; 18%). Median endoscopic FU was 21 months (IQR 2-32) with median 2 (IQR 0-7) endoscopies per patient. Endoscopic FU had been stopped in 10/11 patients at moment of data collection. Median vital FU was 27 months (IQR 21-45). Overall, 4/11 patients (36%) progressed to clinically evident EAC. Three had clinical suspicion of cancer at baseline and 1 flat HGD. All 4 patients presented as symptomatic EAC and died from EAC. Progression occurred median 52 months (range 17-78) after baseline. In all 4 patients, endoscopic FU was terminated median 30 months (IQR 16-44) prior to detection of clinically evident EAC. Among the other patients (7/11), 3 had endoscopic suspicion of progression and underwent curative endoscopic resection for HGD (n=1) or T1-EAC (n=2) 19-21-26 months after baseline. The remaining 4 patients had median vital FU of 26 months (IQR 16-41) without progression and had unrelated death (n=3) or were alive without symptoms (n=1).
Conclusion: Even though HGD and early EAC are logical targets for minimal invasive EET the actual progression to symptomatic disease had a significant duration in our cohort. This lag time may be relevant to consider in patients with a limited life expectancy with early neoplasia or during FU after successful EET.

Risk of head, neck and upper gastrointestinal cancers in FIT-positive screenees participating in a colorectal cancer screening program

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Background: Colorectal cancer (CRC) screening programs based on fecal immunochemical test (FIT) followed by colonoscopy are successful because FIT has a sufficient positive predictive value (PPV) for CRC and advanced neoplasia (AN). However, in almost half of FIT-positive (FIT+) screenees, no AN is detected. In the Netherlands, between 2014 and 2015, the PPV of FIT (cut-off 47 µg Hb/g) for AN in screening naïve individuals was 52.85%. Current guidelines do not recommend additional endoscopy for FIT+ screenees, independent of the colonoscopy findings, while more proximally located cancers (head, neck or upper gastrointestinal cancers) might also lead to a positive FIT. The aim of this study was to evaluate whether FIT+ screenees have a higher risk of being diagnosed with a proximal cancer, in the 3 years after a positive FIT result, than FIT-negative (FIT-) screenees.
Methods: Data of first round CRC screening participants (2014-2016) were collected from the national database and linked to the cancer registry. Screenees were classified into three groups: FIT+ with AN (FIT+/AN+), FIT+ without AN (FIT+/AN-) and FIT-. We evaluated and compared the cumulative incidence of proximal cancers in each group. We evaluated whether esophagogastroduodenoscopy (EGD) should be considered in FIT+ screenees by analysis of EGD- detectable cancers (oesophageal, gastric or duodenal cancers) separately.
Results: Linkage identified 5,793 proximal and 3,719 EGD-detectable cancers. The 3-year cumulative incidence of proximal cancers in FIT+/AN+ (n=61,797), FIT+/AN- (n=47,265) and FIT- (n=1,832,032) screenees was 0.47%, 0.45%, and 0.29%, respectively. For EGD-detectable cancers these percentages were 0.28%, 0.29%, and 0.19%. Differences between groups were statistically significant ($p<0.001$). FIT+ screenees had more EGD-detectable cancers compared to FIT- screenees ($p<0.001$), whereas the difference between those with or without AN was not significant ($p=0.82$).
Conclusion: In this study within a population-based FIT screening program, FIT+ screenees were at increased risk of developing a proximal cancer, regardless of detecting AN at colonoscopy. This suggests that FIT-positivity is a risk indicator, irrespective of the findings at colonoscopy. However, considering the low 3-year cumulative incidence of EGD-detectable cancers, we believe that our results do not justify EGD for all FIT+ screenees.

Anti-TNF withdrawal in patients with Inflammatory Bowel Disease in endoscopic remission: a prospective study

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Background: Discontinuation of anti-tumor necrosis factor-α agents (anti-TNF) in patients with inflammatory bowel disease (IBD) in remission may reduce side effects and costs, but this has to be weighed against the high risk of relapse. Prior studies reported that endoscopic remission is associated with a lower risk of relapse. We aimed to assess the risk of relapse after anti-TNF withdrawal in a selected cohort of IBD patients in clinical and endoscopic remission.
Methods: This was a prospective observational cohort study. Patients were recruited between 2018-2020 in 13 hospitals in the Netherlands. Inclusion criteria were a diagnosis of Crohn's disease (CD), ulcerative colitis (UC) or IBD-unclassified (IBDU), age ≥18 years, ≥6 months of steroid-free clinical remission with anti-TNF therapy, and confirmed baseline clinical (SCCAI/HBI score <5) and endoscopic remission (eMayo ≤1 or SES-CD <5 without large ulcers). We constructed Kaplan-Meier curves with log-rank test to assess the risk of relapse, and performed Cox regression analysis to evaluate potential predictors of relapse: endoscopic activity (Mayo 0 vs 1 or SES-CD 0-2 vs 3-4), subtherapeutic anti-TNF trough levels (infliximab <5mg/L and adalimumab <3mg/L) and immunomodulator (thiopurines or methotrexate) or mesalamine use.
Results: We enrolled 81 patients (CD: n=41, 50.6%), with a median follow-up of 1.95 (IQR 1.6 – 2.1) years. After withdrawal of anti-TNF, 21 (25.9%) patients used an immunomodulator. During follow-up, 40 (49.4%) patients relapsed, with a median time to relapse of 1.5 years (95%CI 1.03 – upper limit not reached). At 12 months, the relapse rate was 37% in CD and 43% in UC/IBDU (p=0.76). Although all patients were in endoscopic remission by our criteria, residual mild endoscopic activitiy was independently associated with a higher risk of relapse (HR 3.28, 95%CI 1.43 – 7.50), and this was consistent in patients with CD (p=0.007) and UC/IBDU (p=0.05). Among patients with UC/IBDU, mesalamine treatment independently decreased the risk of relapse after anti-TNF withdrawal (HR 0.08, 95%CI 0.01 – 0.67). Trough levels (p=0.16) and immunomodulator use (p=0.90) did not significantly predict relapse. During follow-up, 30 (37.0%) patients restarted anti-TNF, with clinical remission in 76% at 3 months. In 4 patients (13.3%), anti-TNF therapy was discontinued again due to primary non-response or loss of response.
Conclusion: The risk of relapse after anti-TNF withdrawal remains high in selected IBD in clinical and endoscopic remission, but reintroduction of anti-TNF was effective. The risk of relapse may be reduced by applying more stringent criteria for endoscopic remission and by mesalamine treatment in UC/IBDU patients.

Effectiveness and Safety of Tofacitinib versus Vedolizumab in Patients with Ulcerative Colitis; a Nationwide, ICC Registry study

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Background: Clinicians face difficulty in positioning biologics and JAK inhibitors in anti-TNF refractory ulcerative colitis (UC) patients. Head-to-head trials comparing the efficacy of vedolizumab and tofacitinib in UC patients are lacking. We aimed to compare the effectiveness and safety of vedolizumab and tofacitinib in anti-TNF experienced UC patients in our prospective, nationwide registry using a propensity score weighted cohort.

Methods: UC patients who failed anti-TNF treatment (with or without thiopurine) and initiated vedolizumab or tofacitinib treatment subsequently, were identified in the observational prospective Initiative on Crohn and Colitis (ICC) Registry. We selected patients with both clinical (Simple Clinical Colitis Activity Index (SCCAI) >2) and biochemical (C-reactive protein (CRP) >5mg/L or faecal calprotectin (FC) >250 µg/g) or endoscopic disease activity (endoscopic MAYO score ≥ 1) at initiation of therapy. Patients previously treated with vedolizumab or tofacitinib were excluded. Corticosteroid-free clinical remission (SCCAI<2), biochemical remission (CRP ≤5 mg/L and/or FC ≤250 µg/g) and safety outcomes were compared after 52 weeks of treatment. Inverse propensity scores weighted comparison was used to adjust for confounding and selection bias.

Results: Overall, 83 vedolizumab and 65 tofacitinib treated patients were included. Propensity score weighted analysis showed that tofacitinib treated patients were more likely to achieve corticosteroid-free clinical remission at week 12, 24 and 52 compared to vedolizumab treated patients (OR: 5.87, 95%CI:3.55-9.70, P<0.01, OR: 2.96, 95%CI: 1.85-4.73, P<0.01 and OR 2.96, 95%CI: 1.85-4.73, P<0.01, respectively). In addition, tofacitinib treated patients were more likely to achieve biochemical remission at week 12 and week 24, remaining only statistically borderline at week 52 (OR: 2.96, 95%CI: 1.85-4.73, P<0.01, OR: 2.96, 95%CI: 1.85-4.73, P<0.01 and OR 1.68, 95%CI: 0.99-2.86, P=0.05, respectively). There was no difference in infection rate (OR:1.057, 95%CI: 0.60-1.86, p=0.85) or severe adverse events (OR: 0.39, 95%CI: 0.03-4.33, P=0.44). No thromboembolic events were observed. Most common reason for treatment discontinuation was loss of response.

Conclusion: In tofacitinib treated, anti-TNF experienced, UC patients, we observed that a higher proportion of patients achieved corticosteroid-free remission after 12, 24 and 52 weeks compared to vedolizumab treated patients. In addition, more tofacitinib treated patients achieved biochemical remission at week 12 and 24. There was no statistically significant difference in severe adverse events.

Withdrawal of thiopurines in Inflammatory Bowel Disease patients in stable remission: a prospective, multicenter cohort study

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Background: Thiopurines including azathioprine (AZA), mercaptopurine (MP) and tioguanine (TG) are cornerstone therapies in the maintenance treatment of inflammatory bowel diseases (IBD). Withdrawal in patients in stable remission may reduce the risk of infections and malignancies, but little is known about the subsequent risk of relapse. This study aimed to assess the relapse rate after discontinuation of thiopurines in IBD patients in stable remission.

Methods: Patients with IBD discontinuing thiopurine therapy were prospectively included in 14 Dutch hospitals if they used a thiopurine for at least one year, and were in steroid-free clinical remission for one year or longer. Clinical, biochemical, endoscopic, and radiological data were collected at baseline (thiopurine cessation), and at 3, 6, 12 and 24 months thereafter. The primary endpoint was disease relapse, defined as: induction or escalation of therapy, or, if available, endoscopic activity, indicated by simple endoscopic score (SES-CD) > 4 for Crohn's disease (CD) or endoscopic Mayo > 1 for ulcerative colitis and IBD unclassified (UC/IBDU). Cox regression analysis was used to determine predictors of relapse.

Results: We enrolled 134 patients (94 CD [70%]; AZA 56%, MP 20%, TG 25%) with a median age of 44.0 years (IQR 30.8-59.0). Fifty-three (40%) patients received concomitant anti-tumor necrosis factor alpha (anti-TNF) at baseline. The median therapy duration before cessation was 61.5 months (IQR 40.0-111.0), median time of clinical remission before cessation was 43.5 months (IQR 27.8-65.5). During the median follow-up time of 14.0 (IQR 11.9-19.7) months after cessation, 37 (28%) patients relapsed. Relapse rates at 12 and 24 months were 28% and 40%, respectively. Median time to relapse was 10.9 (IQR 5.5-16.5) months. UC/IBDU patients had a higher risk of relapse (HR 2.603 [95% CI 1.364 -4.965], p=0.004). Relapse free survival probability in patients with and without concomitant anti-TNF was not significantly different (anti-TNF 82%, no anti-TNF 87%, log rank=0.494). Type of thiopurine, concomitant 5-ASA, remission duration, therapy duration before cessation, baseline mucosal healing, and baseline fecal calprotectin were not predictive of relapse. After relapse, 27 patients received steroids (18 budesonide, 9 prednisone), 15 (re)started thiopurines, 8 initiated anti-TNF, and 8 intensified concomitant anti-TNF.

Conclusion: This prospective study showed relapse rates of 28% and 40% at 12 and 24 months, respectively, after cessation of thiopurines for stable remission. UC/IBDU patients had a higher risk of relapse. Type of thiopurine, remission duration, concomitant 5-ASA or anti-TNF were not predictive of continuing remission.

Ustekinumab Trough Concentrations associated with Clinical and Biochemical Outcomes in Patients With Crohn's Disease

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Background: Ustekinumab (UST) is an effective and safe treatment for patients with Crohn's disease (CD). However, it is currently unknown if Therapeutic Drug Monitoring (TDM) is of additional value in UST treatment. We assessed the exposure-biochemical response relationship of UST trough concentrations at week 8 in a prospective, real-world setting.
Methods: We performed a prospective study in CD patients in four academic centers in the Netherlands. All patients received weight adjusted intravenously (IV) UST induction followed by a maintenance dose of 90 mg SC every 8 or 12 weeks. Individual UST concentration time course during treatment were predicted using a pharmacokinetic (PK) model based on drug level measurements during follow-up and the UST FDA review documents. Quartile analysis and logistic regression was performed to analyse if UST concentration at week 8 was associated with biochemical remission rates at week 24 (C-reactive protein (CRP) ≤ 5 mg/L and / or faecal calprotectin (FC) ≤ 250). An independent cohort was used to validate the primary outcomes.
Results: Ninety patients were included in the primary cohort. Median estimated trough concentrations of UST were 4.23 µg/mL (IQR 2.79 – 5.83) and 7.19 µg/mL (IQR 3.30 – 10.67) at week 8 in the primary and validation cohort respectively. Patients achieving biochemical remission at week 12 and 24 had statistically significant higher UST levels at week 8 compared to patients without biochemical remission (5.98 µg/mL versus 3.94 µg/mL (P<0.01) and 5.95 µg/mL versus 3.86µg/mL (P<0.01)). Also, higher UST levels at week 8 were associated with better biochemical remission rates at week 12 and 24 in logistic regression (OR:1.42, 95%CI: 1.14-1.78, P<0.01 and OR: 1.47, 95%CI 1.15-1.88, P<0.01). In quartile analysis, UST levels of ≥5.9µg/mL were assosiated with higher biochemical remission rates at week 12 and 24. Associations of UST levels at week 8 and biochemical remission at week 12 and 24 were confirmed in the validation cohort. No UST antibodies were detected.
Conclusion: In this real-world cohort of CD patients, ustekinumab levels at week 8 of ≥5.9 µg/mL were significantly associated with higher biochemical remission rates at week 12 and 24.

Effectiveness and safety of thioguanine in thiopurine-naïve Inflammatory Bowel Disease patients

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Background: Currently thioguanine is considered as off-label rescue therapy for Inflammatory Bowel Disease (IBD) after conventional thiopurine failure. This study aimed to determine the safety, effectiveness and 12-month drug tolerability of thioguanine in thiopurine-naïve IBD patients

Methods: We performed an analysis of our multicenter, retrospective cohort study including thiopurine-naïve IBD patients treated with thioguanine as first-line maintenance therapy without concomitant biological therapy. Clinical effectiveness was defined as a sustained clinical response (based on physician's global assessment) without the (re-)initiation of concurrent biological therapy, corticosteroids or a IBD-related surgical intervention. All adverse events that occurred during follow-up were categorized by the Common Terminology Criteria for Adverse Events. Elevation of two concurrent liver tests were categorized as drug-induced liver injury.

Results: A total of 103 IBD patients (female 61%, Crohn's disease 52%) were included with a median daily thioguanine dose of 20mg and median 6-thioguanine nucleotide (6-TGN) levels of 635 pmol/8x10^8 RBC (IQR 425–1100). Clinical effectiveness at 12 months was observed in 60 out of 99 patients (61%) and 80% of patients were still using thioguanine 12 months after initiation. Four patients did not reach the 12-month follow-up period but were in remission at time of data collection. Of the responding patients at 12 months 88% (N=53) remained responsive until the end of follow-up (median follow-up period 28 months, IQR 17–40 months).

Forty-nine patients (48%) developed adverse events (grade 1 or 2), of which 24% graded as moderate (grade 2) and none as severe. Seven patients ceased therapy due to the occurrence of adverse events. Adverse events consisted mainly of elevated liver tests (26%) and gastrointestinal complaints (17%). An infection was documented in three patients, none of them requiring hospitalization. Pancytopenia occurred in two other patients with 6-TGN levels of respectively 2900 and 140 pmol/8x10^8 RBC. None of the included patients had signs of (noncirrhotic) portal hypertension or underwent a liver biopsy during follow-up.

Conclusion: This is the first cohort study that reports on the safety and effectiveness of first-line thioguanine maintenance therapy in IBD. Thioguanine therapy was, 12 months after initiation, still used by 80% and clinically effective in 61% of thiopurine-naive patients. Adverse events were relatively common but mainly mild (grade 1) and the discontinuation rate related to adverse events was lower than observed during conventional thiopurine therapy. No signs of (noncirrhotic) portal hypertension were reported.

Mindfulness-based cognitive therapy for fatigue in patients with inflammatory bowel disease: Results of a randomized controlled trial

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Background: Fatigue is a prevalent and burdensome problem in patients with inflammatory bowel disease (IBD), even when the disease is in remission. Evidence-based approaches for managing IBD-related fatigue are lacking. This RCT examined the effectiveness of mindfulness-based cognitive therapy (MBCT) for reducing fatigue in patients with IBD in remission. We also explored whether effects on fatigue were variable for distinct groups of IBD patients with certain demographic and clinical characteristics (i.e., moderators).
Methods: A two-arm multicenter randomized controlled trial was conducted in 113 IBD outpatients with elevated levels of fatigue (i.e., Checklist Individual Strength – subjective fatigue ≥ 27) and disease activity in remission. Patients were randomly assigned to an 8-week MBCT program (n = 56) or a waiting-list condition (n = 57). All participants completed questionnaires at baseline and directly post-intervention. The primary outcome was fatigue, assessed with the Checklist Individual Strength-20. Secondary outcomes included fatigue interference in daily life, depression, anxiety and IBD-specific quality of life.
Results: Intention-to-treat analyses showed significant reductions in the subjective experience of fatigue in patients receiving MBCT compared to the waiting-list control condition ($p = .025$; Cohen's $d = 0.46$; clinically relevant improvement in 36% vs. 10%). No significant effects were found on other fatigue aspects or secondary outcomes. Exploratory analyses did not indicate a moderating role of demographic and clinical variables for the effects on fatigue.
Conclusion: An 8-week MBCT group program effectively reduced the subjective experience of fatigue in patients with IBD in remission. Results do not support beneficial effects for other aspects of fatigue or secondary outcomes.

Histological revision of high-grade dysplasia in IBD impacts the rate of advanced neoplasia recurrence: a retrospective cohort study

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Background: Despite the significant impact of colitis-associated high-grade dysplasia (HGD) on clinical management, data regarding the accuracy and interobserver variability of a histopathological diagnosis of HGD are limited. We aimed to (1) evaluate inter-observer variability of a histopathological diagnosis of HGD in IBD and (2) correlate revised HGD diagnoses with histological recurrence.
Methods: In this retrospective multi-center study, we used the Dutch nationwide histopathology registry to identify IBD patients with HGD between 1991 and 2020 in seven hospitals in the Netherlands. Exclusion criteria comprised familial CRC or advanced neoplasia (AN) prior to IBD diagnosis. Histopathological slides of the first (index) HGD were blinded and independently revised by two expert gastrointestinal pathologists. Inter-observer variability was assessed with Kappa statistics. Definitive diagnosis was established in an expert consensus meeting. Differences between revised diagnosis were assessed with chi-square tests. Stratified by revised histopathological diagnosis, AN recurrence (HGD and/or CRC) was assessed with Kaplan-Meier curves.
Results: We included 81 patients with HGD, of whom 52 (64.2%) had UC, 63 (77.8%) had extensive disease and 15 (18.5%) had primary sclerosing cholangitis. Thirty-four (42.0%) had prior indefinite (IND) and/or low-grade dysplasia (LGD). Median IBD duration until HGD was 19.0 years (IQR 11.0-29.0 years). Most patients had visible HGD (polypoid n=39 (48.1%), non-polypoid n=32 (39.5%)). Twenty-four (29.6%) patients had multifocal HGD and 19 (23.5%) had synchronous CRC in the surgical resection specimen. 55/81 histopathological HGD slides were available for revision, resulting in a fair inter-observer variability (K 0.33). After consensus, 17 (30.9%) lesions were downgraded to LGD, one (1.8%) to IND and eight (14.5%) were revised to CRC. Downgraded lesions were numerically more often treated with endoscopic resection versus surgery (55.6% vs 33.3%, p=0.12). Before revision, AN recurrence occurred in 16.4% (n=9/55) after a median follow-up of 24 months (IQR 8.5-85.5). After revision, patients with downgraded lesions showed better AN recurrence-free survival compared to those with 'true' AN (n=1/18 after 131 months vs n=8/37 after median 20 months (IQR 5.8-57.5), log-rank p<0.01).
Conclusion: We demonstrated a substantial inter-observer variability for the diagnosis of HGD in IBD, with frequent downgrading after revision. Patients with downgraded lesions demonstrated higher recurrence-free survival of AN. These findings underline the importance of histopathological confirmation of HGD by an expert panel and the impact of HGD on clinical outcomes.

External validation and consistency in time of patient segmentation based on disease acceptance and perceived control in Inflammatory Bowel Disease

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Background: The patient segmentation model based on disease acceptance and perceived control may guide personalized inflammatory bowel disease (IBD) care. A recent single-centre study supported the model's validity and showed disease acceptance and perceived control are important determinants of health-related quality of life (HRQoL) in IBD patients. We aimed to investigate the external validity of the segmentation model and its performance in course of time in IBD patients.
Methods: This is a multicentre longitudinal study of adult IBD patients performed at three secondary care centres with questionnaires on HRQoL (Short IBDQ, range 10-70) and acceptance and control (6 items, 7-point Likert scale). Two cohorts were created: 1) external validation cohort excluding participants of initial validation study and 2) follow-up cohort of patients with questionnaires after one year. Four segments were created based on mean acceptance and control score (cut-off>5): I) high acceptance, high control; II) high acceptance, low control; III) low acceptance, high control; IV) low acceptance, low control.
Results: The external validation cohort included 921 patients that were divided in four segments: I) 28%, II) 15%, III) 7% and IV) 49%. The acceptance and control scale were unidimensional (85 and 83% of variability explained by the first factor) and internally consistent (Crohnbach's α 0.92 and 0.90). The segments differed significantly in gender, disease duration, IBD medication and clinical disease activity ($p<0.05$). In multiple regression analysis, high acceptance and/or high control were significantly associated with a higher HRQoL compared with low acceptance and low control (Beta (95%CI) segment I=11.7 (10.4-13.1), segment II=9.3 (7.7-10.9) and segment III=3.8 (1.6-6.0), $p\leq0.001$). The follow-up cohort of 783 patients was again divided in four segments after one year: 23% remained in segment I, 35% remained in segment II, III or IV, 24% changed positively in segment and 18% changed negatively in segment. HRQoL differed significantly between these groups ($p<0.001$). At follow-up, median SIBDQ score was highest in patients that remained in segment I (62 [IQR 57–66]) and lowest in patients that remained in segment II, III or IV (48 [41–55]). Change in segment correlated positively with changes in HRQoL over time (Spearman rho 0.38, $p<0.001$).
Conclusion: This study demonstrated the patient segmentation model based on disease acceptance and perceived control is externally valid and shows consistency over time. The independent association between the different segments and HRQoL was confirmed. Future research and interventions should aim at improving disease acceptance and perceived control of IBD patients.

Long term prognosis of the modified Rutgeerts score and anastomotic lesions on surgical and severe endoscopic postoperative recurrence rates in Crohn's disease patients following primary ileocolic resection

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Background: The modified Rutgeerts score (mRS) differentiates i2 into lesions confined to the anastomosis (i2a) vs. ileal lesions (i2b), and is considered appropriate to assess postoperative recurrence in Crohn's disease (CD) patients. Since the predictive value of mRS on long-term prognosis is unclear, this study aimed to assess the prognosis of mRS after primary ileocolic resection (ICR) on surgical and severe endoscopic postoperative recurrence rates.
Methods: Data of CD patients who underwent a ICR, between 2000 – 2019, were retrospectively collected from a national, multicenter database. Patients were eligible for inclusion if ≥1 postoperative endoscopy assessed with the mRS was available. Primary outcome was re-resection per mRS (i0-i4) at index (i.e. first postoperative) endoscopy. Secondary outcome was severe endoscopic inflammation (defined as i3-i4) for a subset of patients (mRS i0-i2b). Rates for both outcomes were compared in subgroups (i0-i1, i2a-i2b, i3-i4) by Kaplan-Meier analyses. Multivariable analysis was conducted to identify risk factors for both outcomes.
Results: In total, 638 patients were included. Index endoscopy was performed at 8.5 months (IQR: 5.9 – 22.8) after ICR, with index mRS i0(30.4%), i1(17.7%), i2a(15.8%), i2b(19.6%), i3(9.6%) and i4(6.9%). After a mean follow up of 6.5 years (SD: 4.7), re-resection rate was 7.2% for patients with index mRS i0, 6.2%(i1), 14.9%(i2a), 18.4%(i2b), 22.9%(i3) and 47.7%(i4). Re-resection rates in the subgroups were significantly higher in the group with an index mRS i2a-i2b (16.8%) vs. i0-i1 (6.8%) (log-rank test, $p<0.001$) and in i3-i4 (33.3%) vs. i2a-i2b ($p=0.006$). Follow-up ileocolonoscopy was performed in 54.0% of the patients with index mRS i0-i2b at median interval of 20.4 months (IQR: 10.9 – 37.7). Progression to severe endoscopic inflammation was observed in 21.3% of patients with an index mRS of i0, 36.2%(i1), 26.8%(i2a) and 32.9%(i2b), but was not significantly higher in subgroups (i0-i1 vs. i2a-i2b; 24.7% vs. 29.6%)(log-rank test, $p=0.134$). In multivariable analysis, anastomotic lesions (i2a) are not statistically significant associated with re-resection and progression to i3-i4.
Conclusion: After primary ICR, the ascending index of mRS corresponds with long-term risk of re-resection. In multivariable analysis, anastomotic lesions (i2a) are not significantly associated with the risk of re-resection and progression to severe endoscopic recurrence according to mRS whereas i2b is significantly is associated with both outcomes. The appropriate management of i2a lesions requires further investigation.

Use of TNF-α-antagonists and systemic steroids is associated with attenuated immunogenicity against SARS-CoV-2 in fully vaccinated patients with Inflammatory Bowel Disease

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Background: Patients with Inflammatory Bowel Disease (IBD) frequently receive immunomodulating treatment, which may render them at increased risk of attenuated immunogenicity after vaccination. Immunosuppressive drugs, such as TNF-α-antagonists, have shown an attenuating effect on serological response after SARS-CoV-2 infection. Here we assessed the effects of different types of immunosuppressive medications on the serological response after vaccination against SARS-CoV-2 in patients with IBD.
Methods: This was a prospective observational cohort study in patients with IBD of whom IgG antibody titers were measured after 2-10 weeks after full vaccination against SARS-CoV-2. Patient demographics, clinical characteristics as well as a previous history of SARS-Cov-2 infection, type of vaccine (mRNA or vector), and medication use were recorded at time of sampling. The primary study outcome was the anti-SARS-CoV-2 spike (S) antibody concentrations, measured using chemiluminescence microparticle immunoassay (CMIA) after full vaccination.
Results: 312 IBD patients were included (172 Crohn's disease [CD] and 140 ulcerative colitis [UC]). Seroconversion (defined as titer of >50 AU/ml) was achieved in 98,3% of patients. Antibody concentrations were significantly lower in patients treated with TNF-α-antagonists vs. non-users of TNF-α-antagonists (geometric mean [95% confidence interval]: 2204 [1655-2935] vs. 5002 [4089-6116] AU/ml, P<0.001). In multivariable models, use of TNF-α-antagonists (percentage decrease -88%, P<0.001), age (>50 years) (-54%, P<0.01) and CD (vs. UC) (-39%, P<0.05) were independently associated with anti-SARS-CoV-2 antibody titers. In patients who received mRNA vaccines, users of systemic steroids demonstrated significantly lower antibody titers compared to patients who were steroid-free (geometric mean [95% CI]: 3410 [2233;5210] vs. 5553 [4686-6580], P<0.05).
Conclusion: TNF-α-antagonist use is strongly associated with an attenuated serological response after vaccination, independent of the type of vaccination (mRNA/vector), the time interval between vaccination and sampling, prior SARS-CoV-2 infection and patient age. Patients treated with systemic steroids who received mRNA vaccines demonstrated lower anti-SARS-CoV-2 antibody titers compared with patients who were steroid-free at time of serology.

Bacterial oncotraits but not biofilms are associated with dysplasia in ulcerative colitis.

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Background: Oncotraits are potential oncogenic factors from bacteria such as *Fusobacterium fadA,* the *Bacteroides fragilis toxin (BFT),* colibactin (*pks+)* and intimin (*Eae*) from *Escherichia coli.* Biofilms are adherent polymeric matrices that contain colonic bacteria, and may play an important role in chronic inflammation and carcinogenesis in ulcerative colitis (UC). Oncotraits may be present in biofilms and increase neoplasia risk. This study aimed to determine (1) the effect of oncotraits and (longitudinal) biofilm presence on dysplasia in UC and (2) subsequent associations with cell proliferation and bacterial composition in UC patients undergoing surveillance.
Methods: In this prospective cohort study, we collected feces and left and right-sided colonic biopsies in UC patients and controls. Oncotrait presence (FadA, pks+, Eae and BFT) in fecal DNA was assessed with multiplex qPCR. Biofilms, covering at least 100 μm of the epithelial surface, and bacterial composition were assessed with fluorescent in situ hybridization and metagenome sequencing. Cell proliferation was assessed with ki67 staining. Additional retrospective longitudinal biofilm analysis was performed on a selection of UC patients, from whom at least two colonoscopies with left- and right sided biopsies were available. Associations were assessed with a binary regression (mixed) model.
Results: We included 80 UC patients and 35 controls. Biofilms were longitudinally frequently present in UC (89% of patients at any timepoint in a median follow-up of 7.5 years (IQR 4.5-11.0). Biofilms were associated with mucosal cell proliferation (median number of cells per crypt 42.5 vs 51.1, $p<0.01$), and a trend towards significance for an association with the first episode of dysplasia (OR 2.77, 95% CI 0.85-9.00, $p=0.09$). The *Bacteroidetes* phylum was associated with right-sided biofilms in UC patients with increased neoplasia risk ($p<0.01$). The genus *Fusobacterium* was correlated with a decreased neoplasia risk ($p<0.01$). In line, FadA was associated with absence of dysplasia in the last five years until the study colonoscopy (OR 0.23, 95% CI 0.06-0.83, $p=0.03$). By contrast, colibactin was independently associated with dysplasia (OR 7.16, 95% CI 1.75-29.28, $p<0.01$), with a trend towards significance for an association with biofilms (OR 2.24, 95% CI 0.67-7.51, $p=0.21$).
Conclusion: Colibactin presence and FadA absence are both associated with dysplasia in UC patients while (longitudinal) biofilm presence is not. These exciting findings suggest that not biofilms in general, but associated bacterial functions may dictate carcinogenesis and merit further studies for oncotraits as biomarkers in clinical care.

Mucosal microbiota modulate host intestinal immune signatures in inflammatory bowel disease

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Background: Host intestinal immune gene signatures and microbial dysregulations expose potential mechanisms in the pathogenesis of inflammatory bowel diseases (IBD). Profiling of mucosa-attached microbiota allows the understanding of locally present microbial communities and their immediate impact on the host. This study evaluated interactions between host mucosal gene expression and intestinal mucosa-attached microbiota in IBD.
Methods: Intestinal mucosal bulk RNA-sequencing data was combined with mucosal 16S rRNA gene sequencing data from 696 intestinal biopsies derived from 337 patients with IBD (181 with Crohn's disease [CD] and 156 with ulcerative colitis [UC]) and 16 non-IBD controls. Hierarchical all-against-all associations testing (HAllA) was used to assess factors affecting host gene expressions and microbiota. Mucosal cell enrichments were predicted by deconvolution. Linear mixed interaction models were used to investigate host-microbiota interactions, while adjusting for age, sex, BMI and batch effects. Variation explanation analysis was performed by Lasso regression.
Results: In total, 15,934 intestinal genes and 113 microbial taxa were identified and included in subsequent analyses. Patients with IBD demonstrated mucosal dysbiosis, with expansion of disease-related bacteria and loss of health-related bacteria. We observed forty associations between the mucosal expression of genes and the abundance of specific microbes independent of dysbiosis (FDR<0.05). Examples include a positive association between aryl hydrocarbon receptor (*AHR*) and *Bifidobacterium*. Furthermore, 112 gene-microbiota interactions changed in patients with microbial dysbiosis compared to non-dysbiosis (FDR<0.05). These interactions were enriched in immune-related and extracellular matrix organization pathways. For example, the *IL1R1* gene was positively associated with *Collinsella* abundance in non-dysbiotic patients, whereas an inverse association was observed in high dysbiosis. Finally, the presence of mucosal microbial taxa explained up to 10% of the variation in cell type enrichment, affecting epithelial cells, macrophages and regulatory T-cells.
Conclusion: Interactions between host intestinal gene expressions and mucosa-attached microbiota are disrupted in patients with IBD. Furthermore, mucosal microbiota are highly personalized and potentially contribute to intestinal cell type alterations. Our study unravels key immune-mediated molecular pathways and relevant bacteria in intestinal tissue, which may guide drug development and precision medicine in IBD.

Patients with inflammatory bowel disease show IgG immune responses towards disease-associated small intestinal bacteria

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Background: Inflammatory bowel disease (IBD) is characterized by a disturbed gut microbiota composition. Patients with IBD have elevated levels of mucosal and serum levels of IgG-antibodies directed against bacterial antigens, including flagellins. In this study, we aimed to determine to which fecal bacteria the humoral immune response is directed to in patients with IBD.
Methods: Fecal and serum samples were collected from patients with IBD (n=55) and age- and sex-matched healthy controls (n=55). Fecal samples were incubated with autologous serum and IgG-coated fractions were isolated by magnetic-activated cell sorting (MACS) and the coating efficiency was assessed by flow cytometry. Bacterial composition of both untreated and IgG-sorted fecal samples was determined by 16S rRNA-gene Illumina sequencing.
Results: Serum IgG responses were primarily directed to typical small intestinal bacterial genera, including *Streptococcus*, *Lactobacillus*, *Lactococcus*, *Enterococcus*, *Veillonella* and *Enterobacteriaceae*, as well as against specific *Lachnospiraceae* bacteria, including *Coprococcus* and *Dorea* (all P<0.001), and to the species *Ruminococcus gnavus* (P<0.05). In contrast, serological IgG responses against typical commensal, anaerobic and colonic microbial species were rather low, e.g. to the *Lachnospiraceae* members *Roseburia* and *Blautia*, to *Faecalibacterium* as well as to *Bacteroides*. IgG-sorted fecal samples were characterized by significantly lower microbial diversity. Patients with IBD showed more IgG-coating of *Streptococcus*, *Lactobacillus* and *Lactococcus* bacteria compared with healthy controls (all P<0.05). No differences in IgG-coated bacterial fractions were observed between CD and UC, between active or non-active disease, nor between different disease locations in CD.
Conclusion: The IgG immune response is specifically targeted at typical small intestinal bacterial genera, whereas responses against commensal, rather colonic-type microbiota are lower in patients with IBD. These findings may be indicative of a strong immunological exposure to small intestinal bacteria in concordance with relative immune tolerance against commensal bacteria.

Mucosal eosinophil abundance in non-inflamed colonic tissue predict response to vedolizumab induction therapy in inflammatory bowel disease

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Background: Vedolizumab has shown efficacy, safety and tolerability as treatment for patients with inflammatory bowel disease (IBD). However, vedolizumab induction therapy only shows clinical response and remission in roughly 55% and 30% of IBD patients, respectively. Vedolizumab binds and blocks migration of T-lymphocytes and eosinophils. In this study, we aimed to explore the predictive value of mucosal eosinophils and serum eotaxin-1, an eosinophil chemoattractant, regarding response to vedolizumab induction therapy.
Methods: 84 IBD patients (37 Crohn's disease [CD], 47 ulcerative colitis [UC]) were included. In a subset of 24 IBD patients (9 CD, 15 UC) histopathological data were analyzed for eosinophil counts in high power fields (hpf) in non-inflamed colon ascendens tissue prior to vedolizumab treatment. In another subset of 64 IBD patients, (28 CD, 36 UC) baseline serum eotaxin-1 was quantified prior to vedolizumab treatment. Clinical response or remission was defined as a decrease of the Harvey Bradshaw Index (HBI) for CD or Simple Clinical Colitis Activity Index (SCCAI) for UC together with physician's global assessment (PGA). Serum eotaxin-1 was externally assessed as a biomarker for response to vedolizumab induction therapy in 100 IBD patients derived from the GEMINI 1 & 2 trials.
Results: Baseline eosinophil mucosal count was significantly higher in vedolizumab induction therapy responders, compared to primary non responders (69[34-138] vs. 24[18-28] eosinophils/hpf respectively, $P<0.01$). Baseline serum eotaxin-1 levels in the discovery cohort were significantly elevated in therapy responders, compared to primary non-responders (0.33 vs. 0.20 ng/mL, $P<0.01$). The final prediction model based on mucosal eosinophil count showed an area under the curve (AUC) of 0.90 and serum eotaxin-1 an adjusted AUC of 0.79 The optimal with balanced cut-off value for eosinophil count was > 30 eosinophils/hpf with a sensitivity of 90.9% and specificity of 92.3% (Youden's index 0.83). Results derived from the GEMINI 1 & II cohorts did not show any associations between eotaxin-1 levels and therapy response.
Conclusion: Mucosal eosinophil abundance in non-inflamed colon ascendens biopsies can predict a positive response to vedolizumab induction therapy in IBD patients. More studies are warranted to confirm these preliminary results and further investigate the additional value of eotaxin-1 regarding predicting vedolizumab therapy response.

Microbial signature of the colon is not associated with response to vedolizumab in Crohn's disease

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Background: Crohn's disease (CD) is a complex immune-mediated disease where the gut microbiome plays an important role. One of the established treatments in CD is Vedolizumab (VDZ), an alpha(4)beta(7) integrin antibody. Finding biomarkers to predict therapy response is still a clinical unmet need, since this treatment has shown endoscopic remission in only a third of CD patients. Ananthakrishnan et al. demonstrated a strong relationship between microbial metagenomics signature and therapy response to VDZ in CD based on the metagenomics composition of baseline fecal samples. While the majority of studies focus on fecal samples, mucosa-adherent bacterial signature could bring forth stable biomarkers. In this study, we sought to identify the signature of the adherent microbiome in intestinal biopies to differentiate responders (R) from non-responders (NR) to VDZ treatment at baseline.
Methods: We prospectively collected ileal and colonic biopsies (stored snapfrozen in -80 C) from adult CD patients scheduled to start VDZ treatment during baseline- and follow-up endoscopies. After median 27 weeks of follow-up, patients were classified as either R or NR based on endoscopic response (≥50% reduction in SES-CD score) in combination with steroid-free clinical response (≥3 point drop in HBI or HBI ≤4, no systemic steroids) and/or biochemical response (≥50% reduction in C-reactive protein (CRP) and fecal calprotectin or a basal CRP ≤5 g/mL and fecal calprotectin ≤250 µg/g). Microbiome composition of the biopsies was determined using 16S RNA gene V3V4 amplicon sequencing.
Results: In total, 44 CD patients were included in the baseline cohort (28 R and 16 NR) and 53 CD patients were included in the follow up cohort (37 R and 20 NR), for which 21 patients overlap between baseline and follow up. When comparing alpha-diversity between R and NR, we did not find significant differences in ileal (Wilcoxon, p=0.78) and colonic (Wilcoxon, p=0.70) samples at baseline nor at follow up (ileal Wilcoxon, p=0. 27 and colonic Wilcoxon, p=0. 63). Next, comparing the beta-diversity, we demonstrated no significant differences between R and NR in ileal (baseline p=0.96, follow up p=0.11) and colonic (baseline p=0.11, follow up p=0.4). Microbiome profiles did show high inter-individual variation but were highly similar intra-individually both between body site and over time.
Conclusion: Here, we investigated the microbial signature of VDZ R and NR and demonstrated mucosa associated microbiome is mostly stable after resolution/non-resolution of inflammation in CD and does not predict response to VDZ therapy. Further analyses on data of infliximab, adalimumab and ustekinumab treated patients are ongoing.

Prehabilitation strategies prior to ileocolic (re-)resection in Crohn's disease: a missed window of opportunity?

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Background: Crohn's disease (CD) patients remain at considerable risk of undergoing an intestinal resection. Postoperative complications have been reported in 20% to 47% of the patients. Prehabilitation strategies (PS) are designed to optimize modifiable risk factors concerning the physical and mental condition of the individual patient. PS, prior to intestinal resection in CD, are mostly non-evidence based and guidelines lack recommendations on tailored management. This study aimed to explore which and to what extent PS are currently applied prior to ileocolic (re-)resection (ICR) in CD patients.
Methods: Adult CD patients who underwent an elective ICR, from 2017 through 2021, at six Dutch hospitals were prospectively included. Data concerning the preoperative course within one year to surgery, disease- and surgical-related characteristics were retrospectively collected. Primary endpoint was the application of PS in CD patients prior to ICR. PS were defined as strategies to improve the overall health of the individual patient on several domains (nutrition, physical fitness, psychological status and medication exposure) prior to surgery within a window from surgery indication to surgery.
Results: In total, 127 patients were screened in the preoperative course by gastroenterologist and surgeon. The majority of patients underwent a primary ileocolic resection (73.2%)(n=93). Re-resection of ileocolonic anastomosis was performed in 26.8% (n=34). The indications for ICR were refractory inflammation (21.3%), stenosis (58.3%), abscess (7.8%) or other (12.6%). The surgical approach was laparoscopy in the majority of patients (84.3%)(n=102). Overall postoperative complications (<30 days)(Clavien-Dindo I-V) and severe postoperative complications (Clavien-Dindo ≥ IIIa) were reported in 39.4% and 12.6%. Preoperative weight (six weeks, six and/or twelve months) prior to surgery was assessed in 65.4%, 48.8% and 51.2%, respectively. Malnutrition was diagnosed in 26.8% of the patients of whom 50.0% was consulted a dietician. Specific laboratory values (e.g. albumin, vitamin B12 and D) were only assessed in up to 34.6%. Handgrip strength was assessed in none of the patients. 40.9% of the patients was exposed to a biological at time of surgery. Corticosteroid treatment (prednisolone ≥ 20mg or equivalent) prior to surgery (≤6 weeks) was reported in 28.3% and weaned off in 2.8%.
Conclusion: PS on several domains are not routinely applied and not individually tailored in the preoperative setting prior to an elective ICR in patients with CD. Since early postoperative complications occur frequently, future research on PS is necessary.

Subcutaneous administration, higher age and lower renal function are associated with intracellular methotrexate accumulation in Crohn's disease

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Background: Methotrexate is an immunomodulatory drug for patients with Crohn's disease. Erythrocyte MTX-polyglutamates (MTX-PG_{1-5}) may be used for therapeutic drug monitoring (TDM) as MTX-PG is thought to mediate MTX's efficacy. Information on determinants of the concentration of MTX-PG in patients with Crohn's disease is lacking. We aim to identify clinical and biochemical determinants of the erythrocyte MTX-PG_{1-5} and MTX-PG_{total} concentration in patients with Crohn's disease.
Methods: Adults with Crohn's disease on methotrexate treatment who visited the outpatient clinic were included. Erythrocyte MTX-PGs were measured by tandem mass spectrometry.
Results: Nineteen patients were included, with a median duration of MTX use of 77 months (range 7-202). Twelve patients received MTX monotherapy, whereas 7 patients were on concomitant TNF-α inhibitors. The mean dose of MTX was 15.5 mg (SD ± 2.8) and 12 (63%) patients used subcutaneous MTX. MTX-PG_{1-5} were successfully measured in 18 patients, showing substantial variability in concentrations of MTX-PG_{total} and individual species. The median MTX-PG_{total} was 117.1 nmol/L (range 46.4 – 258.7) with preferential accumulation of MTX-PG_3 (43.1 nmol/L, range 15.3 – 96.1). Patients on subcutaneous compared to oral MTX had higher median MTX-$PG_{(4,5)}$ levels (55 versus 9 nmol/L, $p = 0.01$). Higher age ($\beta = 0.71$) and lower estimated glomerular filtration rate ($\beta = -0.52$) were associated with a significantly higher MTX-PG_{total} concentration ($R^2 = 0.60$, $p = 0.001$).
Conclusion: MTX-PG concentrations display a considerable inter-individual variability. Higher MTX-PG accumulation is associated with subcutaneous administration, higher age, and lower renal function in Crohn's disease patients. This work provides the first step towards establishing TDM for MTX in CD.

An intracolonoscopy bowel cleansing system for hard-to-prepare patients - a prospective multicenter study

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Background: Adequate bowel preparation (BP) is essential for the efficacy and safety of colonoscopy. However, inadequate BP is reported in approximately 20% of colonoscopies. Despite intensified regimes and/or clinical admission for BP, some patients are still inadequately prepared, resulting in missed lesions or additional procedures with associated costs and risks of complications. Therefore, we hypothesized that an intraprocedural bowel cleansing system (Pure-Vu System, MotusGI, Tirat Carmel, Israel), could fill this gap in BP strategies for hard-to-prepare patients. The Pure-Vu System consists of a workstation and oversleeve that fits regular colonoscopes. In previous feasibility studies, the Pure-Vu System has been shown to significantly improve BP quality. In this study, we assessed the safety and efficacy of the Pure-Vu System in patients with a history of poor BP for colonoscopy.
Methods: This ongoing international, multicenter study will include 44 patients with a history of inadequate bowel preparation in the last 2 years and undergoing screening or surveillance colonoscopy. Enrollment will be finished in February 2022. All patients received a limited BP, consisting of 300mL split dose sodium picosulfate magnesium citrate, with a low fiber diet starting 2 days before colonoscopy and a liquid diet upon starting bowel preparation, with additional cleansing being done with the Pure-Vu System. Primary outcome was bowel cleanliness in all segments using the Boston Bowel Preparation scale (BBPS). Secondary outcomes included cecal intubation rate (CIR), procedure times, and safety.
Results: So far, 18 patients have been enrolled. Baseline characteristics are shown in Table 1. Median BBPS before and after cleansing with the Pure-vu system was 1-2-2, and 3-3-3, respectively (P<0.001). CIR was 88.9%. Reasons for incomplete colonoscopy were looping (n=1) and a relative stricture (n=1), possibly due to the added scope-diameter of the Pure-Vu oversleeve. Mean procedure time was 34 minutes (SD 14.9), of which mean 8 minutes were spent on washing. No serious adverse events were observed. Mild abdominal pain (NRS 1.0) occurred in 53%.
Conclusion: The Pure-Vu System could be an important tool to achieve compliance to surveillance intervals, since patients with a history of poor bowel preparation typically undergo an extensive preparation regime and frequent colonoscopies due poor visualization quality. Since these patients also may have a complicated anatomy (i.e., surgical scarring, diverticulosis), these factors should be considered prior to using Pure-Vu to avoid incomplete procedures.

Prevalence of iron deficiency and anemia in the outpatient Inflammatory Bowel Disease population: a Dutch national cross-sectional study

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Background: Iron deficiency (ID) and anemia in Inflammatory Bowel Disease (IBD) are associated with reduced quality of life, worse disease outcomes, and an increase in healthcare costs. In the European guidelines, anemia is listed as one of the treatment goals. The data on the prevalence of anemia and ID are inconsistent. Thus, we evaluated the prevalence of ID, anemia, and potential risk factors in a large Dutch outpatient population.

Methods: Between January and November 2021, consecutive adult outpatients with IBD, who did not have significant comorbidities associated with anemia, were included in this study across 16 general, teaching, and academic hospitals within the Netherlands. Besides demographic and clinical data, relevant biochemical parameters such as hemoglobin (Hb), Mean Corpuscular Volume (MCV), iron indices, and inflammatory markers (e.g., C-reactive protein (CRP) and fecal calprotectin (FCP)) were extracted from medical records. Active IBD was defined by either CRP >5 mg/L or FCP >150 mg/g. ID was defined by ferritin <100 µg/L in case of inflammation and <30 µg/L in quiescent IBD, or transferrin saturation <20%. The Dutch national reference range was used to define anemia: Hb <7.5 mmol/L or <8.5 mmol/L for females and males, respectively. The data were analyzed by stratifying patients into Crohn's Disease (CD) and Ulcerative Colitis (UC) groups, with the latter also including patients with IBD-unclassified (IBDU).

Results: In total, 2197 patients (1271 CD, 849 UC, and 77 IBDU) were included in the study. The overall prevalence of anemia, iron-deficiency anemia (IDA), and ID was: 18.0%, 12.2%, and 43.4%, respectively. The prevalence of all three conditions did not differ between the CD and UC groups ($P > 0.05$). Severe anemia (Hb <6.2 mmol/L) was observed only in 28 patients. ID was more frequently observed in biochemically active IBD compared with quiescent IBD (70.8% versus 23.9%; $P < 0.001$). Female gender, younger age, low MCV, and a twofold increase in biochemical inflammation were associated with ID development in multivariable analysis: Log_2FCP [OR 1.39; 95% CI: 1.29–1.50; $P < 0.001$] and Log_2platelets [OR 1.85; 95% CI: 1.16–2.95; $P < 0.01$]. In multivariable analysis, low ferritin and MCV, inflammation, older age, and male gender were associated with a higher risk of anemia; however, disease location or behavior did not affect the risk of developing anemia or ID.

Conclusion: One in five ambulatory IBD patients presents with anemia that is primarily caused by ID. Inflammation increases the risk of ID and anemia regardless of IBD type or disease location. High ID prevalence suggests the need for screening and treatment optimization.

The Effect of Induction Therapy with Infliximab or Vedolizumab on Hepcidin and Iron Status in Patients with Inflammatory Bowel Disease

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Background: Differentiating absolute iron deficiency (ID) from functional iron restriction is challenging in active Inflammatory Bowel Disease (IBD). Hepcidin, the systemic iron regulator, could be the key in the diagnosis and management of absolute ID. In this study, we assessed hepcidin as a diagnostic ID marker and we explored the relationship between hepcidin, inflammation, hypoxia, and ID in patients receiving induction therapy with infliximab (IFX) or vedolizumab (VEDO).
Methods: 130 patients with IBD, who received induction therapy with IFX or VEDO for active disease, were included in this study. Clinical and biochemical data were extracted from medical records. Serum samples at baseline and week 6 of induction therapy were retrieved from the University Medical Center Groningen (UMCG) biobank and analyzed for: hepcidin, inflammation (e.g., interleukins [IL] 6, 10, and Tumor Necrosis Factor-α [TNFα]), oxidative stress (free thiols), and hypoxia (e.g., erythropoietin [EPO], Macrophage Inflammatory Protein-3α [MIP3α]). For comparison, serum samples from 50 age- and gender-matched healthy controls were obtained from pre-donation biobank at the UMCG. Response to therapy was defined by either Global Physician's Assessment at week 14 of induction therapy, normalization or at least a three-point decrease in clinical scores: Harvey-Bradshaw Index (HBI) for Crohn's Disease, Simple Clinical Colitis Activity Index (SCCAI) for ulcerative colitis.
Results: Hepcidin correlated with ferritin and sTfR/log ferritin index [ρ = 0.74 and ρ = -0.79, respectively; $P < 0.001$ for both markers], while inflammation- and hypoxia-associated markers showed only marginal correlations. Hepcidin accurately identified absolute ID: $AUC_{(hepcidin)}$ = 0.89 [95% CI: 0.82–0.95; $P < 0.001$]. Induction with either IFX or VEDO decreased hepcidin [13.5 ng/mL vs. 9.5 ng/mL; $P < 0.001$], ferritin [45.5 ug/L vs. 37.0 ug/L, $P < 0.05$], and inflammatory markers at week 6, while transferrin increased [2.4 g/L vs. 2.5 g/L, $P < 0.001$]. In total, 75.4% of patients responded to the induction therapy. Hepcidin and ferritin decreased, while transferrin increased ($P < 0.001$ for all changes) in patients who responded to the therapy. In addition, hypoxia (EPO, MIP3α) and inflammatory markers such as fecal calprotectin, IL-6, IL-22, and TNFα improved significantly. In contrast, none of these improvements were observed in patients who did not respond to the therapy.
Conclusion: Hepcidin reflects iron deficiency in active IBD, but inflammation masks the severity of the deficiency. Induction therapy with either IFX or VEDO modulates hepcidin and iron indices, especially in patients who respond to the therapy.

Loss of response and dose escalation of infliximab and adalimumab in ulcerative colitis patients: a systematic review and meta-analysis.

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Background: Anti-Tumor necrosis factor agents are essential therapeutics in moderate-to-severe ulcerative colitis (UC). Annual loss of response (LOR) and dose escalation (DE) risk in UC patients have not been systematically evaluated. This study aimed to assess the annual LOR rate and DE rate for infliximab (IFX) and adalimumab (ADA) in UC.

Methods: A systematic search of PubMed, EMBASE and Cochrane Library was conducted from January 2000 to July 2021. Clinical trials and cohort studies assessing IFX and/or ADA use in adult UC patients were included if these reported LOR rates or DE rates. The primary outcomes included (1) the annual LOR per patient-year of IFX and ADA in UC patients and (2) the annual DE rates per patient-year of IFX and ADA. LOR was only assessed in patients who had primary response to IFX or ADA as defined by the authors. LOR was reported as defined by the authors and then categorized in three definition groups: 1) treatment discontinuation due to LOR, 2) treatment intensification defined as dose escalation and/or treatment switch and/or surgery, because of LOR and 3) increase of clinical, biochemical and/or endoscopic disease activity. Dose escalation was defined as any dose increase or interval shortening as reported by the authors. Summary estimates were calculated using random effects models.

Results: Our search yielded 26,320 potentially relevant articles. We analyzed 50 unique studies (IFX (n=35) or ADA (n=23)) assessing LOR (IFX: 24 cohort studies, ADA: 21 cohort studies) or DE (IFX: 21 cohort studies, ADA: 16 cohort studies). Follow-up among all studies ranged from 38 to 350 weeks. The pooled annual LOR for IFX was 11.2% (95% CI [0.082-0.153]). LOR per category was as follows: 8.3% (95% CI [5.3-13.3]) for discontinuation (n=16), 18.6% (95% CI [11.5-29.8]) for treatment intensification (n=6), 19.3% (95% CI [14.3-26.0]) for increase in clinical/biochemical/endoscopic activity (n=2). The pooled annual LOR for ADA was 15.1% (95% CI [0.103-0.220]). LOR per category was as follows: 12.0% (95% CI [7.1-19.9]) for discontinuation (n=16), 43.6% (95% CI [21.8-87.2]) for treatment intensification (n=3), 11.6% (95% CI [4.0-33.9]) for increase in clinical/biochemical/endoscopic activity (n=2). Annual pooled DE rates were 14.7% (95% CI [10.4-20.7]) for IFX and 21.3% (95% CI [15.6-29.0]) for ADA.

Conclusion: The overall pooled annual LOR in UC patients was 11% for IFX and 15% for ADA. LOR rates varied among different used definitions. Annual dose escalation rates were 15% for IFX and 21% for ADA. Future studies in this field should focus on a universal definition of LOR and report time to loss of response.

Endoscopic Ultrasound-Guided Coil and Cyanoacrylate Injection Therapy in Gastric and Ectopic Varices: an Illustrative Case Series

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Background: Endoscopic cyanoacrylate injection (ECI) is the recommended therapy for bleeding gastro-esophageal varices type 2 (GOV2) and isolated gastric varices (IGV) followed by endoscopic follow-up and/or transjugular intrahepatic porto-systemic shunt (TIPS) placement. Recently EUS-guided coil placement and cyanoacrylate injection (EUS-CCI) was introduced as new and potential improved endoscopic therapy, with low rates of rebleeding and pulmonary embolism. An EUS guided approach has the advantage over ECI of transesophageal interrogation of the gastrofundal varices and with unobstructed view in case of acute variceal hemorrhage. Here we report our experience with this novel technique in a retrospective analysis.
Methods: We reviewed clinical records of all patients treated with EUS-CCI at Amsterdam University Medical Centers from July 2019 – November 2021. For gastric varices the gastrofundal convolute or perforating vessel was identified by EUS from the distal esophagus or cardia, and punctured with a 19G or 22G needle for respective 0.035 or 0.018 inch coil placement following local protocol. The coil (6-20mm) was selected with a diameter up-to or larger than the convolute diameter, ensuring fixation within the varix. The primary endpoint was technical success, defined as endovascular coil deployment at intended position without hemorrhage. Secondary endpoint were adverse events, rates of rebleeding and death.
Results: Eight patients (mean age 57 years, range 44-74) were treated with EUS-CCI as secondary prophylaxis for GOV-1 (n=1), GOV2 (n=3), IGV (n=1), rectal and duodenal varices (n=3). All patients had a history of variceal hemorrhage due to portal hypertension as a result of cirrhosis (n=4) or splanchic vein thrombosis (SVT) (n=4). TIPS placement was contraindicated in the patients with cirrhosis and balloon-occluded retrograde transvenous obliteration (BRTO) was technically impossible in the patients with SVT. Technical success with EUS-CCI (mean number of coils: 1,5, range 1-2) was achieved in all patients. One patient reported abdominal pain during follow-up. No clinical signs of pulmonary embolism were reported. Three patients experienced rebleeding at 1, 1 and 5 months after EUS-CCI respectively. During mean follow-up of 5 months (range 1-14 months) 3 patients died due to rebleeding, liver decompensation and progressive metastasized malignancy respectively.
Conclusion: EUS-CCI appears to be a valuable addition to the arsenal of gastrointestinal endovascular therapy, and may be utilized in a selected group of patients with gastrointestinal varices in whom TIPS and BRTO are contraindicated or technically impossible. Further prospective randomized trials are needed.

Prognostic value of colonic tissue and blood eosinophils in ulcerative colitis

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Background: It has been suggested that eosinophils may be a prognostic marker of disease outcome in ulcerative colitis (UC) but conflicting data exists. Therefore, the objective of this study was to investigate the extent of mucosal eosinophils and peripheral blood eosinophil count in newly diagnosed UC patients and to investigate its predictive value in short- and long-term disease outcomes.
Methods: The degree of eosinophilia in baseline colonic biopsies and blood of newly, diagnosed UC patients was retrospectively analyzed. It was investigated if tissue and blood eosinophilia could be a marker of a severe phenotype of UC, defined as the need for corticosteroids and/or immunomodulators in the first year, or treatment with therapeutic monoclonal antibodies and/or colectomy during follow-up. Time to therapeutic monoclonal antibodies and time to colectomy were also evaluated as outcomes.
Results: There were 103 UC patients with median age 26 years at diagnosis included. Median tissue peak eosinophil count (PEC) was 70.0 (IQR 50.0-110.0) and median peripheral blood eosinophil count was 0.3 x 10^9/L (IQR 0.2-0.7) at diagnosis. Tissue PEC (r =-0.161, n=103, p =0.104) and blood eosinophil count ($r_s(53)$ = 0.022, p =0.877) were not correlated with the severity of histologic inflammation. Logistic regression analyses did not identify PEC and blood eosinophil count as predictors of more severe disease outcomes. Tissue PEC did not predict the time the initiation of therapeutic monoclonal antibodies (HR 0.996, 95%CI 0.988-1.003, p=0.267) or colectomy (HR 0.999, 95%CI 0.992-1.007, p=0.886). Peripheral blood eosinophil count did not predict the time to initiation of therapeutic monoclonal antibodies (HR 1.175, 95%CI 0.619-2.230, p=0.623) or colectomy (HR 1.224, 95%CI 0.478-3.133, p=0.673).
Conclusion: This large cohort study in both adults and children with UC shows that baseline tissue or peripheral blood eosinophils are not markers of disease activity and cannot be used as a predictor of severe disease outcomes in UC.

Dutch, UK and US professionals' perceptions of screening for Barrett's esophagus and esophageal adenocarcinoma: a concept mapping study.

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Background: Screening for esophageal adenocarcinoma (EAC) and its precursor Barrett's esophagus (BE), combined with treatment of early EAC and/or dysplasia, has been suggested as a route to decrease EAC-related mortality but current strategies are ineffective. Large randomized trials on screening using novel minimally-invasive modalities have been performed in the UK, and regional studies in the US. Concurrent understanding of health care providers' perspectives is essential to develop methods to improve BE/EAC screening. This study aimed to explore and compare Dutch, UK and US professionals' perceptions of BE/EAC screening.
Methods: In this study, 29 Dutch, 20 British and 18 American professionals (clinicians, researchers and policy makers) participated in digital group concept mapping: a mixed-methods consensus building methodology. Statements on perceived barriers, facilitators, harms and benefits of BE/EAC screening were collected in a digital brainstorm session. Subsequently, participants sorted the statements into groups according to thematic similarity and rated the statements to determine their perceived priority. Multidimensional scaling and cluster analysis were used to map the relationship between statements and to cluster them in themes.
Results: Professionals across the three countries identified eight consistent themes that described their perceptions of BE/EAC screening: (1) Potential health benefits; (2) Harms of screening; (3) Clinical effectiveness concerns; (4) Screening population identification; (5) Screening modality; (6) Costs and infrastructure; (7) Operationalization and partnership; and (8) Public awareness and communication. These themes either described whether BE/EAC screening is medically and ethically justified (theme 1, 2 and 3), contained suggestions for implementation of screening (theme 6, 7 and 8), or both (theme 4 and 5). Dutch and US professionals prioritized the potential health benefits of screening but were also skeptical about clinical impact and cost-effectiveness. UK professionals prioritized methods for screening population identification and testing.
Conclusion: Professionals across the three countries were ambivalent (positive vs. skeptical) about BE/EAC screening and emphasized a continued need to study long-term benefits and harms. By identifying perceptions of multiple stakeholders, this study will facilitate the design of tools to identify the target population, suitable screening tests, logistical and financial pathways and public education interventions for potential implementation of BE/EAC screening. Differences between Dutch, UK and US concept maps suggest that international collaboration can additionally support this process.

Self-expandable duodenal metal stent placement for palliation of gastric outlet obstruction over the past 20 years in a tertiary hospital in the Netherlands

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Background: Duodenal stent placement is a palliative option for management of gastric outlet obstruction (GOO) symptoms in cancer patients. In the last 20 years management of gastrointestinal cancers has considerably changed. It is unknown if these changes have affected clinical outcome of duodenal stent placement.
Methods: Retrospective cohort study conducted in a tertiary referral center. Patients who underwent duodenal stent placement for GOO-symptoms due to a malignant stricture were included. Primary outcome was GOO-symptom free survival. Secondary outcomes included stent-related adverse event rates. Potential explanatory parameters such as period of stent placement (1998-2009 *vs* 2010-2019), prior treatments, peritoneal deposits, and stricture length were evaluated using multivariable Cox regression analysis.
Results: Hundred-forty-seven patients (62% male; median age 64 years) were included. After a median of 28 days after stent placement, 82 patients (57%) had recurrent GOO-symptoms. GOO-symptom free survival was significantly lower in 2010-2019 (P<0.01). Time period was the only independent predictor for reduced GOO-symptom free survival (HR 1.76, P<0.01). Stent-related adverse event rates increased over time (1998-2009: 31% vs 2010-2019: 37%). Prior treatment with chemotherapy and/or radiotherapy was significantly associated with an increased risk of adverse events (OR 2.53, P=0.02).
Conclusion: Clinical outcome of duodenal stent placement did not improve over time. A decreased GOO-symptom free survival and increased adverse event rate in more recent years is probably related to the chemo- and/or radiotherapy treatment provided prior to duodenal stent placement.

Artificial intelligence in (gastroenterology) healthcare – Patients' and physicians' perspectives

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Background: Artificial intelligence (AI) is entering into daily life and has the potential to play a significant role in healthcare. AI can provide faster/more accurate diagnosis, direct personalized treatment, make risk predictions, and reduce medical errors. For successful implementation of AI, acceptance by patients and physicians is paramount. Aim was to investigate the knowledge, experience, and opinion on AI among patients with GI disorders, gastroenterologists, and GI-fellows.
Methods: This study was a non-interventional, prospective questionnaire study. Data were obtained from GI-patients aged ≥18 years, who underwent an endoscopic procedure in one of two Dutch hospitals, and from GI-physicians (certified gastroenterologists and GI-fellows) from multiple Dutch hospitals. Primary outcomes were the knowledge, experience, and opinion on AI. Secondary outcomes were the willingness to apply AI in (GI) healthcare, and (dis)advantages of AI use in healthcare. Closed-ended, open, and multiple response questions scored on a 5-point Likert scale were included.
Results: In total, 377 GI-patients, 35 gastroenterologists, and 45 GI-fellows participated. Of GI-patients, 62.5% reported to be familiar with AI, and 25% of GI-physicians had personal experience with AI in their work. On a 5-point Likert-scale, GI-patients preferred their physicians to use AI (mean 3.9 [SD 1.0]). GI-physicians were willing to use AI for their patients (gastroenterologists 4.8 [SD 0.4] vs GI-fellows 4.3 [SD 0.7], $P<0.001$). Both GI-patients and GI-physicians believed that the quality of care will increase with AI, but GI-physicians were more convinced (81.3%) than GI-patients (64.9%, $P=0.017$). On average, GI-fellows expected AI to be implemented in healthcare within 6.0 years (SD 3.0), whereas gastroenterologists expected this within 4.2 years (SD 2.7, $P<0.001$). GI-patients expected implementation within 6.1 years (SD 4.6, $P=0.047$ compared to a mean of 5.2 years for GI-physicians). GI-patients and GI-physicians agreed on the most important advantages of AI in healthcare: improving quality of care (66.1% GI-patients vs 90.0% GI-physicians), time saving (38.0% GI-patients vs 55.0% GI-physicians), and faster diagnostics and shorter waiting times (71.3% GI-patients vs 51.2% GI-physicians). The main disadvantage for GI-patients was the potential loss of personal contact with healthcare professionals (66.4%), where this was insufficiently developed IT infrastructures for GI-physicians (56.3%).
Conclusion: GI-patients and GI-physicians were positive towards AI and its application in healthcare. A proper understanding of perceived (dis)advantages will help further AI developments and implementation, and will increase trust in AI.

Setting up a regional expert panel for complex colorectal polyps

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Background: Advanced endoscopic resection techniques for complex colorectal polyps have evolved significantly over the past decade, leading to a management shift from surgical to endoscopic resection as the preferred treatment. However in daily practice, interhospital consultation and access to the required expertise for appropriate referral management remain challenging and under-used. In order to support regional care for patients with complex colorectal polyps, facilitate peer consultations and lower thresholds for interhospital referrals, a digital expert panel consultation platform was initiated in the northwestern region of the Netherlands.
Methods: We initiated a regional expert panel in the northwestern region of the Netherlands for patients with complex colorectal polyps and studied the implementation, adaption and clinical impact. All panel consultations between June 2019 and May 2021 were analyzed and user satisfaction among panel members was evaluated.
Results: Eighty-eight patients with complex colorectal polyps from eleven of fifteen participating centers (73.3%) were discussed in our panel. The most common reason for panel consultation was suspicion of invasive cancer in 36.4% (n=32), followed by lesion size in 11.4% (n=10) and location in 10.2% (n=9). After panel consultation, 43.2% (n=38) of the consulting endoscopists changed their initial treatment strategy, and in 63.6% (n=56) patients were referred to another endoscopy center. Of 26 cases submitted with a primary proposal for surgical treatment, surgery was avoided in seven (26.9%). In all seven cases, endoscopic resection was feasible and followed by surveillance. On the other hand, in 17 cases (29.8%) in which endoscopic treatment was initially proposed, the expert panel advised a surgical treatment. In the majority of cases where panel consultation changed the proposed treatment to surgery (14/17, 82.4%) the suggested endoscopic treatment was deemed not feasible because of the suspicion of deep submucosal invasion. User satisfaction was rated high in majority of participating centers (91.7%).
Conclusion: Our study shows that implementation of a regional expert panel for complex colorectal polyp cases facilitates peer consultation, could lower thresholds for interhospital referrals and thereby decrease the number of inappropriate surgical or endoscopic interventions. Access to the required expertise on complex colorectal polyps cases can support physicians in optimizing treatment and can aid appropriate referral management. Similar regional initiatives or multidisciplinary referral networks are strongly encouraged to be implemented.

Endoscopy teaching in the Netherlands: a national survey among gastroenterology residents.

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Background: Teaching endoscopy is a key objective of gastroenterology residency programs. There is currently no standardized or systematic teaching approach. This study evaluates and compares the current status of gastrointestinal (GI) endoscopy training programs in all teaching hospitals in the Netherlands.
Methods: A national online survey with open and closed questions on GI endoscopy training was administered to all gastroenterology residents in the 8 educational regions in the Netherlands. Descriptive statistics were used to analyze the responses.
Results: A total of 119 gastroenterology residents completed the survey (66% respons rate), of which 100 already started their endoscopy training. Sixty-five residents (65%) were satisfied with their endoscopy training program. Participation in an endoscopy training course was mandatory in 7 of the 8 educational regions. Residents from the region without a mandatory endoscopy training course were significantly less likely to be satisfied with their endoscopy training program (31.6%, p=0.011). Criteria used to determine the level of supervision differed greatly between teaching hospitals (e.g. number of procedures, predefined period of time or assessed endoscopy competence). Most residents reported that supervising gastroenterologists rarely observed a complete procedure once the resident was allowed to perform GI endoscopies under indirect supervision. Only 26 residents (26%) reported uniformity in teaching methods and styles between different supervising gastroenterologists in their teaching hospital.
Conclusion: This study identified extensive local and regional variability in GI endoscopy training programs and teaching methods used in teaching hospitals in the Netherlands. A standardized, competency-based endoscopy curriculum with uniform teaching methods will likely contribute to improvement of endoscopy teaching in gastroenterology residency.

Automatic textual description of colorectal polyp features: explainable artificial intelligence based on the BASIC classification

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Background: Computer-aided diagnosis (CADx) systems could improve the optical diagnosis of colorectal polyps (CRPs) performed by endoscopists. However, the implementation of CADx systems into clinical practice is not possible without the acceptance of artificial intelligence (AI) based systems by both doctors and patients. For this reason, a request for opening the AI 'black box' (the information that leads to the outcome of an AI-based system) has occurred. An aspect of deep learning and explainable AI is automatically generating textual descriptions from images to improve understanding of AI-based systems. In addition, automatically generated textual descriptions can be helpful to make accurate descriptions of CRP characteristics in endoscopy reports. We aimed at developing a CADx system that generates automatic textual descriptions for CRPs, based on the Blue Light Imaging (BLI) Adenoma Serrated International Classification (BASIC).
Methods: Both databases for CADx development, consisted of High Definition White Light (HDWL), BLI, and Linked Color Imaging (LCI) images. Training data contained 507 images of 35 hyperplastic polyps, 12 sessile serrated lesions (SSLs), and 48 adenomas, with 6525 corresponding textual descriptions by endoscopists. Testing data contained 165 images; one image for each imaging mode, of 15 hyperplastic polyps, three SSLs, 36 adenomas, and one colorectal carcinoma. The 165 descriptions generated by CADx were compared to 1857 descriptions by nineteen endoscopists. Reference descriptions not matching histological diagnoses were excluded. The Recall Oriented Understudy for Gisting Evaluation Longest common subsequence (ROUGE-L) score, was used to evaluate the longest sequence of words in the generated description, corresponding with the reference description. The score was calculated for the complete generated sentence, all BASIC descriptors together; the description of morphology and size, and the three BASIC descriptors (surface, pit pattern, and vessels) individually.
Results: A CADx system generating automatic textual descriptions of CRP features was successfully developed. ROUGE-L scores (%) per category were: Complete sentence 83%, BASIC descriptors 70%, Morphology & size 89%, Surface 92%, Pit pattern 85%, and Vessels 59%.
Conclusion: This study demonstrates that development of a CADx system for automatic textual description of CRPs is feasible. The CADx system performed acceptably. Textual descriptions can help endoscopists comprehend reasoning behind CADx diagnoses, and therefore raise acceptance of CADx use in clinical practice. Especially the performance of vessel description requires improvement before implementation into clinical practice.

Endoscopic vacuum therapy for patients with anastomotic leakage after esophago-gastric surgery.

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Background: Anastomotic leakage (AL) after upper gastro-intestinal (UGI) surgery is associated with severe morbidity and mortality. Recently endoscopic vacuum therapy (EVT), using an endoscopically placed sponge, was introduced as treatment of AL. The aim of this study was to describe the outcomes of the initial experiences with EVT in a tertiary referral center, in the treatment of AL after esophago-gastric surgery.
Methods: For this retrospective cohort study, all patients treated with EVT for AL in the UGI tract at a tertiary referral center, between January 2018 and October 2021, were included. In this period patients with AL, based on CT-scan or endoscopic findings, were primarily treated with EVT. Cases were identified from the endoscopy reporting system, with a search including all available terms for EVT. Data on patient characteristics, EVT and outcomes were analyzed. The primary endpoint were success rate of EVT alone, defined as closure of the defect assessed by endoscopy or CT-scan and severe complications.
Results: A total of 38 patients were included, of whom 31 (82%) were men. The mean age was 66 years (SD 9.3) (Table 1). Twelve patients had undergone a total gastrectomy with an esophago-jejunal anastomosis and 26 patients an esophageal resection with an esophago-gastric anastomosis (21 intrathoracic and 5 with a cervical anastomosis). Successful treatment with EVT was achieved in 28 patients (74%). In 10 patients EVT failed: one patient deceased during treatment (due to radiation pneumonitis) and 9 patients underwent additional surgery: one due to a tracheo-esophageal fistula, one because of iatrogenic expansion of the defect during overtube placement and 7 because defect closure was not achieved.
Median hospital stay was 42 days (range 14-160, IQR 2). Median duration of EVT was 27 days (range 6-88, IQR 34), with a median of 6 EVT-related endoscopies (range 2-19, IQR 8) and 5 days between sponge exchanges (range 1-9, IQR 3). Additional percutaneous drainage was performed in 22 patients (58%). EVT associated complications occurred in two patients (5%): in one patient the overtube caused iatrogenic expansion of the defect and one developed a tracheo-esophageal fistula.
Conclusion: EVT is a paradigm shifting treatment potentially preventing surgical re-intervention in patients with AL after UGI surgery, with a success rate of 74%. More experience with the technique and indications for use will likely improve success rates in the future.

Neoadjuvant chemotherapy in elderly patients with gastric cancer undergoing surgery: a population-based cohort study

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Background: Gastric cancer is often diagnosed in elderly patients, with around 60% patients being older than 70 years in 2020. Curative treatment of gastric cancer usually consists of perioperative chemotherapy followed by radical gastrectomy. However, most gastric cancer guidelines are based on trials in which predominantly younger patients were included. It is unknown whether elderly patients have a similar survival benefit from chemotherapy before gastrectomy compared to younger patients.
Methods: This is a population-based cohort study, for which data was obtained from the Netherlands Cancer Registry. Patientswith primary resectable gastric adenocarcinoma, with or without neoadjuvant chemotherapy, who were scheduled for a potential curative gastrectomy between 2015 and 2019 were included. The primary outcome is the percentage of elderly patients (age ≥75) who proceeded to surgery after receiving neoadjuvant chemotherapy. Secondary outcomes included overall survival compared between elderly patients with and without neoadjuvant chemotherapy, who underwent a potential curative gastrectomy.
Results: A total of 1995 patients, of whom 746 aged ≥75 years were included in this study. In the group of elderly patients, 275 received neoadjuvant chemotherapy and 471 were directly scheduled for gastrectomy. The percentage of patients not proceeding to surgery after chemotherapy increased with age, to 26% in patients aged >80. Overall survival was comparable between elderly patients with and without neoadjuvant chemotherapy who underwent a potential curative gastrectomy (median 35 vs. 32 months).
Conclusion: Elderly patients treated with neoadjuvant chemotherapy have a similar overall survival compared to elderly patients directly scheduled for gastrectomy. However, the percentage of patients not proceeding to surgery after neoadjuvant chemotherapy increases with older age. Therefore, neoadjuvant chemotherapy should only be given in elderly patients who are fit enough to proceed to surgery afterwards.

Pattern of lymph node metastases in gastric cancer: a side-study of the multicenter LOGICA-trial.

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Background: The required extent of lymphadenectomy during gastrectomy may vary per patient based upon tumor characteristics. For instance, the Japanese Gastric Cancer Association recommends different surgical strategies depending on tumor location and D1+/D1-lymphadenectomy for cT1N0-tumors. However, the relation between tumor characteristics and the pattern of lymph node (LN) metastases in gastric cancer is unclear, especially following neoadjuvant chemotherapy (NAC). The study aim is to analyze the pattern of LN metastases of gastric cancer.
Methods: Individual LN stations were separately collected (no. 7–9, 11 and 12a) or clearly marked at the resection specimen (no. 1–6), and were analyzed for all patients included in the LOGICA-trial. The LOGICA-trial was a multicenter randomized trial comparing laparoscopic versus open gastrectomy in ten Dutch hospitals. Total and distal D2-gastrectomy were performed for resectable gastric cancer (cT1–4aN0–3bM0). The pattern of metastases per LN station was related to tumor location, cT-stage, Lauren classification and NAC-treatment. In addition, the distribution of LN metastases over the individual LN stations was assessed for four subgroups based on tumor location, cT-stage, Lauren classification and NAC-treatment, and several combinations of these characteristics.
Results: Between 2015–2018, 212 patients underwent D2-gastrectomy, of whom 158 (75%) received NAC. LN metastases were present in 121 patients (57%). Proximal tumors metastasized predominantly to proximal LN stations (no. 1, 2, 7 and 9; OR>1, p<0,05), and distal tumors to distal LN stations (no. 5, 6 and 8; OR>1, p>0,05). However, distal tumors still metastasized to proximal LN stations, and vice versa. Each individual LN station (no. 1–9, 11 and 12a) showed metastases, regardless of the tumor location, cT-stage, histological subtype and NAC-treatment, including station 12a for cT1N0-tumors. LN metastases were present more frequently in diffuse versus intestinal tumors (66% versus 52%; p=0,048), but not for cT3–4- versus cT1–2-stage (59% versus 51%; p=0,259). However, the pattern of LN metastases was similar for both of these subgroups. As sensitivity analysis, the analyses were repeated with only the NAC-treated patients to test the robustness of our conclusions, which showed a similar pattern of LN metastases after NAC.
Conclusion: Although the pattern of LN metastases is related to tumor location in gastric cancer, metastatic spread occurred in all LN stations, regardless of the tumor location, cT-stage (including cT1N0-tumors), histological subtype and NAC-treatment. Therefore, D2-lymphadenectomy (including stations 11/12a) should be routinely performed during gastrectomy.

Distal Pancreatectomy Fistula Risk Score (D-FRS): Development and International Validation

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Background: A tool to predict the risk of postoperative pancreatic fistula (POPF) after distal pancreatectomy (DP) is currently lacking. It could be used for the selection of preventive strategies, for benchmarking across centers and stratifying patients by baseline risk in clinical studies and is ideally calculated prior to surgery. We aimed to develop and externally validate the first fistula risk score for POPF after DP.
Methods: Predictive variables for POPF were found using data of patients undergoing DP in two Italian centers (2014-2016) utilizing multivariable logistic regression. A prediction model was designed based on these variables. These data were pooled with the data of two US and three Dutch centers (2007-2016). Discrimination and calibration were assessed in an internal-external validation procedure.
Results: Overall, 1336 patients after DP were included, of whom 291 (22%) developed POPF grade B/C. A preoperative risk score was developed, including two variables: pancreatic neck thickness (OR:1.14 [95% CI:1.11-1.17] per mm increase) and pancreatic duct diameter (OR:1.46; [95%CI: 1.32-1.65] per mm increase). The model performed well in the design cohort (AUC:0.80 (95% CI:0.76-0.84)) and after internal-external validation (AUC:0.73 (95% CI:0.70-0.76)). Three risk groups for POPF grade B/C were identified: low-risk (<10%, 238 pts [18%]), intermediate-risk (10-25% 684 pts [51%]),), and high-risk (>25% 414 pts [31%]).
Conclusion: The Distal Fistula Risk Score (D-FRS) is the first externally validated risk score to successfully predict the risk of POPF after DP. It can be easily calculated prior to surgery using https://evidencio.com/models/show/2573. The three distinct risk groups may facilitate personalized treatment.

The Impact of Complications after Resection of Pancreatic Ductal Adenocarcinoma on Disease Recurrence

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Background: Previous studies have shown that postoperative complications withhold pancreatic ductal adenocarcinoma (PDAC) patients from receiving adjuvant chemotherapy and disadvantage their survival. However, the exact impact of individual complications after surgery for PDAC on long-term oncological outcomes remains unclear. This study aimed to evaluate this impact on disease-free survival (DFS).

Methods: All patients undergoing resection for histologically proven PDAC between January 2014 to December 2017 in the Netherlands were included. Baseline and perioperative data were extracted from the prospective Dutch Pancreatic Cancer Audit. Data on recurrence and survival were collected additionally. The impact of postoperative complications on DFS was evaluated using multivariable Cox regression analysis, adjusting for confounders. Secondary, overall survival (OS) was assessed. Complications included pancreatic fistula, delayed gastric emptying, postpancreatectomy hemorrhage, gastrojejunostomy leakage, biliary leakage (all ISGPS grade B/C), pneumonia, major complications (Clavien-Dindo ≥3) and organ failure.

Results: With a median follow-up of 60 months (interquartile range [IQR] 38-75), 1272 patients were included. Median DFS was 14 months (95% confidence interval [CI] 14-16). Median OS was 21 months (95% CI 19-22). Major complications (hazard ratio (HR) 1.24 (95% CI 1.05-1.47); P=0.01), single organ failure (HR 1.79 (95% CI 1.25-2.57); P<0.01), and multiple organ failure (HR 2.23 (95% CI 1.30-3.82); P<0.01) were significantly associated with shorter DFS and OS.

Conclusion: Major complications, single and multiple organ failure are associated with shorter DFS and OS in patients after PDAC resection. Therefore, prevention of these complications might lead to improvement of long-term oncological prognosis.

Short- and long-term outcomes of pancreatic cancer resection in elderly patients: a nationwide analysis

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Background: The number of elderly patients with pancreatic cancer is growing. Clinical data on the short-term outcomes, rate of adjuvant chemotherapy and survival in these patients are, however, limited. We therefore performed a nationwide analysis.
Methods: Data from the prospective Dutch Pancreatic Cancer Audit were analyzed, including all patients undergoing pancreatic cancer resection between January 2014 to December 2016. Patients were classified into two age groups: <75 and ≥75 years. Major complications (Clavien-Dindo grade≥3), 90-day mortality, rates of adjuvant chemotherapy and survival were compared between age groups. Factors associated with start of adjuvant chemotherapy and survival were evaluated with multivariable Cox regression and logistic regression analysis.
Results: Out of 836 patients, 198 patients were aged ≥75 years (24%) and 638 patients were aged <75 years (76%). Median follow-up was 38 (interquartile range [IQR] 31-47) months. Major complications (31% versus 28%; P=0.43) and 90-day mortality (8% versus 5%; P=0.18) did not differ. Adjuvant chemotherapy was started in 37% versus 69% of patients (P<0.001). Median overall survival was 15 (95% confidence interval [CI] 14-18) months versus 21 (95% CI 19-24; P<0.001) months. Age ≥75 years was not independently associated with OS (HR 0.96 [95% CI 0.79-1.17]; P=0.71). Age ≥75 years was, however, associated with a lower rate of adjuvant chemotherapy (OR 0.27 [95% CI 0.18-0.40]; P<0.001).
Conclusion: The rate of major complications and 90-day mortality after pancreatic resection did not differ between elderly and younger patients. Elderly patients were, however, less often treated with adjuvant chemotherapy and their overall survival was shorter.

Implications of the new MRI-based rectum definition according to the sigmoid take-off: a multi-center cohort study

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Background: With the introduction of the MRI-based rectum definition according to the sigmoid take-off, there will be a shift in rectal carcinoma patients. As an effect, a proportion of patients will be treated differently. The aim of this study is to determine the effect of implementing the sigmoid take-off definition for rectal carcinoma on the amount of rectal cancer diagnosis and its effect on clinical outcomes.
Methods: Eleven Dutch rectal cancer centers with profound experience with minimal invasive total mesorectal excision participated. Patients operated between 2015 and 2017 were included if (1) pre-operative MRI or CT imaging was available, (2) patients were registered in the Dutch ColoRectal Audit (DCRA) as having rectal carcinoma and (3) underwent elective total or partial mesorectal excision with curative intent. Imaging of all patients was re-assessed for rectal carcinoma according to the sigmoid take-off, by trained researchers.
Results: In total, 1436 patients with rectal carcinoma according to the DCRA were included. After re-assessment of imaging, 1244 patients had a rectal tumor according to the sigmoid take-off, while 192 (13.4%) were diagnosed with a sigmoid carcinoma. Sigmoid cancer patients had fewer surgical complications (20.3% vs 34.0%, $p<0.001$) with less anastomotic leakages (7.4% versus 18.3%, $p<0.001$) and less major morbidity (10.4% versus 20.7%, $p<0.001$). Furthermore, permanent stoma rate was significantly lower (18.2% versus 56.2%, $p<0.001$). 163 out of 192 patients with a sigmoid carcinoma did not have synchronous metastasis, 92 (56.4%) of these patients would receive other (neo-) adjuvant treatment due to use of the new definition.
Conclusion: 13.6% of the current rectal cancer patients are diagnosed with sigmoid carcinoma according to the sigmoid take-off. 56.4% of these patients will receive other (neo-) adjuvant treatment due to use of the new definition. Additionally, sigmoid patients had a significantly lower risk on postoperative complications.

Endoscopic Vacuum-assisted Surgical Closure (EVASC) of anastomotic defects after low anterior resection for rectal cancer; lessons learned

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Background: Endoscopic vacuum assisted surgical closure (EVASC) is an emerging treatment for AL, and early initiation of treatment seems to be crucial. The objective of this study was to report on the efficacy of EVASC for anastomotic leakage (AL) after rectal cancer resection and determine factors for success.
Methods: This retrospective cohort study included all rectal cancer patients treated with EVASC for a leaking primary anastomosis after LAR at a tertiary referral centre (July 2012 - April 2020). Early initiation (≤21 days) or late initiation of the EVASC protocol was compared. Primary outcomes were healed and functional anastomosis at end of follow-up.
Results: Sixty-two patients were included, of whom 38 were referred. Median follow-up was 25 months (IQR 14-38). Early initiation of EVASC (≤21 days) resulted in a higher rate of healed anastomosis (87% vs 59%, p=0.016) and functional anastomosis (80% vs 56%, p=0.046) if compared to late initiation. Median interval from AL diagnosis to initiation of EVASC was significantly shorter in the early group (11 days (IQR 6-15) vs 70 days (IQR 39-322), p<0.001). A permanent end-colostomy was created in 7% and 28%, respectively (p=0.027). In 17 patients with a non-defunctioned anastomosis, and AL diagnosis within 2 weeks, EVASC resulted in 100% healed and functional anastomosis.
Conclusion: Early initiation of EVASC for anastomotic leakage after rectal cancer resection yields high rates of healed and functional anastomosis. EVASC showed to be progressively more successful with the implementation of highly selective diversion and early diagnosis of the leak.

Cost-effectiveness of sacral neuromodulation versus personalized conservative treatment in idiopathic slow-transit constipation: Results from the No.2-Trial

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Background: Sacral neuromodulation (SNM) is an effective treatment in 53.7% of patients with idiopathic slow-transit constipation (STC). As reimbursement of SNM for STC will be associated with increased costs for the Dutch healthcare system, evaluating its cost-effectiveness is important to aid policymakers in making evidence-based allocation decisions. We assessed the cost-effectiveness of SNM compared with personalized conservative treatment (PCT) in patients with idiopathic STC, from a societal and healthcare perspective with a time horizon of 6 months.
Methods: This trial-based economic evaluation included 65 patients (SNM n=41, PCT n=24). The primary outcome was treatment success at 6 months. Quality-adjusted life years (QALYs), healthcare costs, productivity losses, and patient and family costs were assessed at baseline, 3, and 6 months. QALYs were derived from EQ5D5L utility scores. Costs were measured using costing questionnaires and hospital registrations. Incremental cost-effectiveness ratios (ICERs) were calculated. In the cost-utility analysis (CUA), ICERs were based on societal costs and QALYs; in the cost-effectiveness analysis (CEA), ICERs were based on healthcare costs and the number of successfully treated patients. The probability of SNM being cost-effective for a range of willingness-to-pay threshold values was plotted in cost-effectiveness acceptability curves, based on nonparametric bootstrap analyses with 1000 draws on costs and outcomes.
Results: Societal and healthcare costs were higher in SNM compared with PCT (societal €16,721.34 vs. €2,554.58; healthcare €15,424.21 vs. €1,463.13). SNM was more effective compared with PCT in terms of QALYs (0.33 vs. 0.22) and the number of successfully treated patients (53.7% vs. 4.2%). This resulted in ICERs of €142,715.14 per QALY (CUA) and €28,208.84 per successfully treated patient (CEA). Bootstrap analysis revealed that the far majority of ICERs indicated SNM being more effective, but also more costly compared with PCT. This resulted in a 0% probability of SNM being cost-effective up to a maximum threshold of €80,000 per QALY. Sensitivity analyses showed that ICERs were more favorable after extending the depreciation period of SNM material to 5 years (€50,494.26 per QALY; €9,712.06 per successfully treated patient).
Conclusion: Although SNM was more effective compared with PCT, it was not cost-effective in the short-term, due to high upfront SNM intervention costs. Extension of the SNM material depreciation period to a battery life time of 5 years suggested that SNM may become cost-effective over time; decision analytic modeling including follow-up data is necessary to assess long term cost-effectiveness of SNM.

Predicted absolute risk of lymph node metastasis in T1 colorectal cancer in the sole presence of tumour budding, lymphovascular invasion or poor differentiation: a meta-analysis

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Background: High-grade (Bd2/Bd3) tumour budding (TB), poor differentiation (PD) and lymphovascular invasion (LVI) are regarded as the strongest predictors for lymph node metastasis (LNM), and their presence considered an indication for completion surgery. However, these risk factors are strongly intercorrelated and their individual predictive strength is unclear. This study therefore aimed to investigate the absolute risk of LNM in the presence of only one of these risk factors.
Methods: Studies were eligible for this meta-analysis if a multivariable analysis on the risk of LNM in T1CRC was performed with at least LVI, PD and TB as risk factors. The adjusted odds ratios were pooled in a random-effects model. To convert the pooled adjusted odds ratios (pORs) to absolute risks, a multivariable logistic regression model including the pORs but with an undefined intercept was fitted on a retrospective multicentre cohort of 628 Dutch T1CRC patients (12% LNM, 7% pedunculated, 32% rectum). Predicted probabilities of LNM with their corresponding 95% confidence intervals (95%CI) were calculated in the presence of one risk factor.
Results: A total of 14 studies (4628 patients) were included in the meta-analysis. LVI was the strongest predictor (pOR: 4.89 [95%CI: 2.89-8.27]), followed by PD (pOR: 3.10 [95%CI: 2.02-4.75]) and TB (pOR 2.34 [95%CI: 1.69-3.25]). The fitted model (AUC 0.72 [95%CI: 0.66-0.77]) predicted the absolute risks in the presence of a single risk factor: 13.4% for LVI (95%CI: 10.3%-16.5%), 8.9% for PD (95%CI: 6.8%-11.1%) and 6.9% for TB (95%CI: 5.2%-8.6%). The predicted risk in the absence of the three risk factors was 3.1% (95%CI: 2.3%-3.9%).
Conclusion: The absolute risk of LNM in the presence of a single histopathological risk factor varies between 6.9% and 13.4%, and is strongest for LVI.

All-cause mortality after successful endoscopic eradication therapy for Barrett's related neoplasia in a nationwide cohort of 1154 patients.

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Background: Endoscopic eradication therapy (EET) is standard care for Barrett's Esophagus (BE) with early neoplasia. Current protocols for endoscopic surveillance after successful EET are still based on strict follow-up protocols from the initial studies on EET, and expert opinion. Post-EET recurrence detection rates per endoscopy are low and surveillance intervals may be too aggressive. Furthermore, competing causes of mortality other than recurrent esophageal neoplasia are not considered, and such data are lacking. We aimed to evaluate all-cause and other-cause mortality during long-term follow-up after successful EET in a nationwide cohort from the Netherlands.
Methods: In the Netherlands, EET is centralized in 9 Barrett Expert Centers (BEC), with a standardized treatment and follow-up protocol and a joint database. We included all patients with complete eradication of BE after EET from 2008 to 2018. Data were merged with microdata from Statistics Netherlands for survival outcomes, including date and cause of death. Vital follow-up was defined as the time between end of treatment and death or most recent follow-up data collection. Primary outcome was the annual incidence rate (AIR) for other-cause mortality after EET.
Results: A total of 1,154 patients achieved complete eradication of BE and were included in this study. The mean age of these patients was 64 years old (SD 9). During a median vital follow-up after treatment of 49 months (interquartile range (IQR) 26-72), 95/1154 patients (8%) died at a median 40 months (IQR 16-59) after EET was finished. The AIR for all-cause mortality was 15.0 per 1000 person years [95% CI 12-18]. In total, 92/95 (97%) patients died of causes other than esophageal cancer, with an AIR for unrelated mortality of 14.5 per 1000 person-years [95% CI 11-18]. The most common causes of death were cancer other than esophageal cancer (n=35, 38%), cardiovascular disease (n=24, 26%) and pulmonary disease (n=13, 14%). The remaining 3/95 patients (3%) died of recurrent esophageal cancer (AIR 0.5 per 1000 person years [95% CI 0.4-0.5]), median 48 months (range 28-61) after EET was finished.
Conclusion: After successful EET, the risk of dying from causes other than EAC was 30 times higher than the risk of dying from recurrent EAC. Given the high competing risk of other-cause mortality, the value of aggressive post-EET surveillance is likely overstated.

Sleep positional therapy for nocturnal gastroesophageal reflux: a double-blind, randomized, sham-controlled trial.

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Background: Nocturnal gastroesophageal reflux symptoms have a negative impact on sleep quality and are difficult to treat with acid suppressive medicines. Experimental studies suggest that sleep position plays a role in occurrence of reflux and the left lateral decubitus position is most favourable. The aim of this study was to evaluate the effect of a novel electronic sleep positional therapy wearable device on sleep position and nocturnal reflux symptoms.
Methods: We performed a double-blind, randomized, sham-controlled trial in patients with nocturnal symptoms of gastroesophageal reflux. The study was conducted fully remotely during the COVID-19 pandemic. We used online patient recruitment, used (video) calls for screening and dispensed the medical devices to the home address of the subjects. None of the patients visited the research site and the investigators worked from home.
Patients were advised to sleep in the left lateral decubitus position and were randomly assigned(1:1) to an electronic sleep positional therapy wearable device, programmed to either produce a vibration when in the right lateral position(intervention) or only during the first 20 minutes(sham). Primary outcome was treatment success, defined as ≥50% reduction in the nocturnal reflux(N-GSSIQ) score. Secondary outcomes included change in sleep position and reflux symptoms.
Results: One hundred patients were randomized. In the intention-to-treat analysis, the rate of treatment success was 44% in the intervention group (22/50) vs 24% in the sham group (12/50)(Risk difference: 20%(95% CI 1.8 % to 38.2%; p=0.03)). Treatment led to a significant avoidance of sleeping in the right lateral decubitus position (intervention 2.2% vs sham 23.5%; p=<0.0001) and an increased time of sleeping in the left lateral decubitus position (intervention 60.9% vs sham 38.5%; p=<0.0001). More reflux-free nights were observed in the intervention group(intervention 9 nights, IQR 6-11 vs sham 6 nights, IQR 3-9; p=0.01) and the score reflecting nocturnal symptoms were significantly lower in the intervention group(intervention 8.0, IQR 4.5-12.0 vs sham 12.0, IQR 7.0-16.0; p=0.01).
Conclusion: Sleep positional therapy using an electronic wearable device promotes sleeping in the left lateral decubitus position and effectively alleviates nocturnal reflux symptoms compared to sham treatment.

Gastrointestinal cancer-derived fibroblasts expressing JAM-A are amenable to targeting by oncolytic reovirus

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Background: Gastrointestinal (GI) cancers are characterized by extensive desmoplasia that both promotes tumor progression and hinders effective therapy. Oncolytic virotherapy is currently being trialed for different malignancies of the GI tract, but it is largely unknown whether these viruses also target the tumor stroma. Here, we investigated the tropism of two commonly used oncolytic viruses (OVs), adenovirus and reovirus, towards primary GI fibroblasts derived from human esophageal, stomach, duodenal and pancreatic carcinomas (N=36).
Methods: Patient-derived GI fibroblasts were exposed to OVs and cell viability was assessed to determine sensitivity to OV-induced cell death. Viral entry receptor expression on GI fibroblasts was determined by flow cytometry and correlated to sensitivity to cell death induction by OVs. 2D and 3D tumor-fibroblast cultures were generated to study the role of OV infection in a multicellular setting. Site-directed mutagenesis of the reoviral entry receptor JAM-A was performed to study the mechanistic role of JAM-A signaling in mediating reovirus-induced apoptosis.
Results: GI fibroblasts were susceptible to cytolysis by type 3 Dearing (T3D) strain R124 and bioselected mutant reovirus (*jin*-3) infection but not adenovirus (Ad5-ΔRbD). Efficient fibroblast infection and lysis by these reoviruses were dependent on the expression of the wildtype reovirus entry receptor, Junctional Adhesion Molecule-A (JAM-A), and were recapitulated in a murine model of gastrointestinal cancer. Moreover, human GI cancer organoid-fibroblast co-cultures showed higher overall infectivity when containing JAM-A expressing fibroblasts as compared to JAM-A negative fibroblasts, indicating a potential role of JAM-A expressing fibroblasts for viral dissemination. We further show that JAM-A is not only necessary for efficient reovirus infection of fibroblasts but also partly mediates reovirus-induced apoptosis, dependent on signaling through the PDZ-domain located at the C-terminal end of JAM-A.
Conclusion: Altogether, our data show the presence of JAM-A expressing fibroblasts in both human and murine GI cancers that are amenable to infection and apoptosis induction by reovirus and extends the current tropism of this virus to also include stromal cells.

CD8+ T cells in the invasive margin combined with FOXP3+ T cells in the tumor center significantly associate with survival in resectable gastric cancer, a post-hoc analysis of the Dutch D1/D2 trial

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Background: In gastric cancer, studies of tumor infiltrating lymphocytes as a prognostic biomarker show contradictory results. These results may be caused by use of variable immunohistochemistry (IHC) quantification techniques, different marker selections and particularly inconsistency in the evaluated tumor regions. To overcome these issues, we performed a comprehensive digital image analysis of 5 immune cell markers for their prognostic value in a cohort of gastric cancer patients who were treated with surgery only in the Dutch D1/D2 trial.
Methods: All available surgical resection specimens of gastric cancer patients were included in this study (N=251). IHC for T-cell markers CD3, CD45RO, CD8, FOXP3 and Granzyme B (GZMB) was performed on serial slides. After manual annotation of the tumor area, an invasive margin was defined as 0.5 mm into the tumor annotation still containing tumor cells (inner margin, IM) and 0.5 mm outside of the tumor annotation not containing tumor cells (outer margin, OM). The density of positive immune cells (cells/mm^2) was digitally quantified using QuPath for each 0.5x0.5 mm^2 square across tumor center (TC), IM and OM, separately. A classification and regression tree (CART) model was employed to identify an optimal combination of prognostic markers from the continuous immune cell density variables with cancer specific survival (CSS) as outcome.
Results: The CART decision tree identified CD8 OM as most dominant prognostic factor, followed by FOXP3 TC in the CD8 OM low subset. This resulted in 3 CART branches in the decision tree: CD8 OM high with best prognosis, CD8 OM low/FOXP3 TC high with intermediate prognosis, and CD8 OM low/FOXP3 TC low with worst prognosis (Log-rank *p*-value <0.0001). The CD8 OM high branch was enriched in EBV+ (38.2%) and MSI-high (17.6%) tumors, compared to the other two branches with poorer prognosis (4.2% and 3.4% for EBV+, 7.9% and 8.4% for MSI-high). The CART model was an independent predictor of CSS in a multivariable cox-regression (HR for banch 2 vs 1: 4.87, 95% CI 1.96-12.07 and HR for branch 3 vs 1: 7.97, 95% CI 3.20-19.86), which included T stage, N stage, Lauren classification, EBV-status and MSI-status.
Conclusion: The OM in gastric cancer contains previously overlooked important prognostic information valuable for immune biomarker studies. The combination of CD8 OM and FOXP3 TC is identified as strongest prognostic factor in the risk stratification of resectable gastric cancer, and is independent of T stage, N stage, EBV-status, MSI-status and Lauren classification. Moreover, high T-cell densities found in a proportion of EBV-/MSS tumors support further investigation of response to immunotherapy in these subgroups.

Inhibition of stromal glycolysis by targeting PFKFB3 decreases experimental colitis

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Background: Studies in fibrotic diseases revealed that glycolysis is the preferred energy source for fibroblasts. 6-phosphofructo-2-kinase/fructose-2, 6-bisphosphatase 3 (PFKFB3) has the highest kinase activity to shunt glucose toward glycolysis. Therefore inhibition of PFKFB3 has been proposed as a potential target for several cancers and inflammatory diseases. However, the metabolic status of fibroblasts in patients with inflammatory bowel disease (IBD) and the role of PFKFB3 are currently unknown.
Methods: Single-sample gene set enrichment analysis (ssGSEA) of GSE16879 was performed to evaluate metabolic changes in IBD. Seahorse real-time cell metabolic analysis was performed to explore the metabolic activity of fibroblasts. Next the expression of PFKFB3 in primary patient derived intestinal fibroblast was determined by quantitative PCR and western blot under normal and inflammatory conditions. Proliferation and migration of fibroblasts were measured using colony formation and wound healing assays. In order to evaluate the effect of the inhibition of PFKFB3 *in vivo*, PFK15, a specific inhibitor of PFKFB3, was intraperitoneal injected in mice with dextran sodium sulfate (DSS)-induced colitis. Next to clinical parameters, the abundance of α-smooth muscle actin (α-SMA) expressing fibroblasts, immune cells (CD45) and endothelial cells (CD105) was determined by immunohistochemistry.
Results: The ssGSEA analysis revealed glycolysis was significantly higher in IBD patients, compared to healthy controls. Consistently, the expression of PFKFB3 was also elevated in a cohort of inflamed intestinal tissues from IBD patients compared to non-inflamed sites from the same patient or healthy controls. On the cellular levels, this analysis showed that PFKB3 expression was higher in IBD-derived stromal cells compared to healthy or non-inflamed stromal cells. In vitro PFKFB3 expression in fibroblasts was increased after the stimulation with pro-inflammatory cytokines like TNF-α and a mix of cytokines often upregulated in IBD patients: interleukin (IL)-17A, oncostatin M (OSM) and IL-1β. As for the metabolic changes, inflamed fibroblasts had a higher extracellular acidification rate and a lower oxygen consumption rate, which could be reverted by inhibition of PFKFB3 using PFK15. Furthermore, PFK15 suppressed the proliferation and migration of fibroblasts. The *in vivo* experiments showed that PFK15 reduced the severity of the colitis, accompanied by a reduction of the total amount of immune cells (CD45), activated fibroblasts (α-SMA) and angiogenesis (CD105).
Conclusion: Increased PFKFB3 expression seems to contribute the inflammation and the pathological function of fibroblasts in IBD.

Targeting endoglin in esophageal squamous cell carcinoma

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Background: The prognosis of esophageal squamous cell carcinoma (ESCC) remains poor despite efforts by the research field to explore novel treatment options. Endoglin is a transforming growth factor beta (TGF-β) co-receptor and has been associated with tumor progression when expressed on cancer associated fibroblasts (CAFs) or tumor-associated vessels. In this project, we investigated the role of epithelial endoglin expression on ESCC progression.
Methods: Epithelial cell-specific endoglin expression was studied on ESCC resection specimens using immunohistochemical and immunofluorescent (double) stainings. Next, the role of endoglin on cell migration and invasion was studied in 10 ESCC cell lines, which were established from resection material. To further investigate the functional consequence of endoglin expression, we generated endoglin overexpression in low endoglin expressing cells or CRISPR/cas9 mediated knock-out in high endoglin expressing ESCC lines. Downstream signaling was studied by Western blot for Smad1 phosphorylation. Since endoglin can be shedded from the cell membrane, we measured soluble endoglin levels in the ESCC cell lines. Functionally, the effect of endoglin on ESCC proliferation, migration and invasion was assessed using a MTS proliferation and scratch/wound healing assay using the endoglin overexpression and knock out cells.
Results: A slight increase of endoglin positive tumor cells was observed in ESCC, compared to healthy esophageal squamous epithelium cells in which no endoglin was detected. The ESCC cell lines showed strongly varying levels of endoglin expression, from absent to high. Our results showed that BMP-9 very efficiently induced Smad1 phosphorylation, while TGF-β stimulation resulted in robust Smad2 phosphorylation. Surprisingly, endoglin overexpression resulted in decreased pSMAD1 levels when cells were stimulated with BMP-9, indicating decreased downstream signaling. TGF-β induced Smad2 phosphorylation was not affected by endoglin overexpression. Overexpression of endoglin resulted in strongly increased soluble endoglin levels, possibly explaining the inhibitory effects on signaling. Ongoing experiments show that (soluble) endoglin indeed can affect the proliferation and migration of ESCC cells.
Conclusion: Taken together, endoglin is, in contrast to normal esophageal squamous epithelial cells, expressed by ESCC cells and regulates BMP-9 induced signaling, cell proliferation and migration, possibly by endoglin shedding from the cell membrane.

Towards a Greener Endoscopy Room: Recycling Plastic Waste

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Background: About 6-8% of the Dutch CO_2 emission is attributed to the healthcare sector and this includes the use of energy, travelling to the hospital or the processing of waste (1). Recently, the environmental impact of the gastrointestinal (GI) endoscopy unit is gaining attention as it is the second highest clinical procedure-related waste generating department (2, 3). Nevertheless, the majority is not recycled. This project aims to investigate the net benefit of a plastic waste recycling program in a GI endoscopy unit in terms of recycling percentage, carbon footprint and associated costs.
Methods: In this single-centre study, the type and amount of waste that was produced during routine endoscopies was collected and examined during a baseline measurement. The waste was collected in different waste streams; paper/cardboard, glass, contaminated residual waste and non-contaminated residual waste. Sustainable waste management scenarios were examined and compared in terms of CO_2 footprint, recycling rate, and waste treatment costs by using the Healthcare Sustainability Mode and Effect Analysis (HSMEA). The endoscopy employees were given a waste recycling training (i.e. presentation, Q&A and posters). A mobile waste bin was installed in every endoscopy room to segregate the plastic waste. Finally, the waste of 'post-training' endoscopic procedures was collected, compared with the baseline procedure and tested for correct waste separation.
Results: In total, 14.6 kg of waste was collected during 15 procedures during the baseline measurement (0.97 kg per procedure) with a proportion of recyclable plastic waste of 9.6%. Waste processing costs increased from €1.60 (all residual waste) to €2.06 (+28%) with recycling of plastic. The post-training measurement was comparable with the baseline measurement. However, 15% of the plastic waste contained 'incorrectly separated' plastics, mainly consisting of empty syringes and tubes. After counselling, it is expected that this proportion will drop to 0% as the incorrectly separated waste consists of only two product types. Recycling the plastic waste led to a reduction of the carbon footprint with approximately 3%. Per endoscopic procedure, this results in a reduction of 0.14 kg CO_2 emission. Over the year 2019, this would have led to a reduction of 1481 kg CO_2 emission in our centre, which corresponds to 6875 km drive in a non-electric car.
Conclusion: Recycling plastic waste is a small, but easily implementable step towards a more sustainable practice in the endoscopy department. The demonstrated environmental benefit, but also the enthusiasm of the personnel, are compelling reasons to implement this at other endoscopy rooms as well.

Thermal ablation of mucosal defect margins to prevent local recurrence after endoscopic mucosal resection of large non-pedunculated colorectal polyps: a systematic review and meta-analysis.

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Background: Endoscopic mucosal resection of large non-pedunculated colorectal polyps is characterized by a high risk of recurrence. Thermal ablation of the mucosal defect margins may reduce recurrence in these lesions, but a systematic overview of the current evidence is lacking.
Methods: We searched Pubmed, Embase and Cochrane until July 2021, for studies on thermal ablation of mucosal defect margins of large non-pedunculated colorectal polyps. Primary outcome was pooled risk difference of recurrence between thermal ablation vs. no adjuvant treatment. Secondary outcome was pooled recurrence rate after STSC and APC.
Results: Ten studies on thermal ablation of mucosal defect margins were included, with 3 studies on argon plasma coagulation (APC), 6 studies on snare tip soft coagulation (STSC) and 1 study comparing both treatment modalities, representing a total of 316 APC cases and 1598 STSC cases. Overall pooled risk difference of recurrence was -0.17 (95% CI -0.22 – -0.12) as compared to no adjuvant treatment. Pooled risk difference was -0.16 (95% CI -0.19 – -0.14) for STSC and -0.26 (95% CI -0.80 – 0.28) for APC. Pooled recurrence rate was 4% (95%-CI 2-10%) for STSC and 10% (95%-CI 2-21%) for APC.
Conclusion: Thermal ablation of mucosal defect margins significantly reduces recurrence rate in large non-pedunculated colorectal lesions compared to no adjuvant treatment. While no evidence for superiority exists, STSC may be preferred over APC because this method is the most evidence-based, and cost-effective modality.

Diagnosis and treatment of exocrine pancreatic insufficiency in chronic pancreatitis: an international expert survey and case vignette study

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Background: Despite evidence-based guidelines, exocrine pancreatic insufficiency is frequently underdiagnosed and undertreated in patients with chronic pancreatitis. Therefore, the aim of this study is to provide insight into the current opinion and clinical decision-making of international pancreatologists regarding the management of exocrine pancreatic insufficiency.
Methods: An online survey and case-vignette study was sent to chronic pancreatitis experts and members of various pancreatic associations: EPC, E-AHPBA and DPSG. Experts were selected based on publication record from the past 5 years.
Results: Overall, 252 pancreatologists participated of whom 44% had ≥ 15 years of experience and 35% treated ≥ 50 patients with chronic pancreatitis per year. Screening for exocrine pancreatic insufficiency as part of the diagnostic work-up for chronic pancreatitis is performed by 69% and repeated annually by 21%. About 74% considers nutritional assessment to be part of the standard work-up. Patients are most frequently screened for deficiencies of calcium (47%), iron (42%), vitamin D (61%) and albumin (59%). In case of clinically steatorrhea, 71% prescribes enzyme supplementation. Of all pancreatologists, 40% refers more than half of their patients to a dietician. Despite existing guidelines, 97% supports the need for more specific and tailored instructions regarding the management of exocrine pancreatic insufficiency.
Conclusion: This survey identified a lack of consensus and substantial practice variation among international pancreatologists regarding guidelines pertaining the management of exocrine pancreatic insufficiency. These results highlight the need for further development and adaptation of these guidelines according to current expert opinion and the level of available scientific evidence.

Diagnostic value of a sensitive next generation sequencing panel with unique molecular identifiers (UMIs) for evaluating routine EUS-FNA smears of solid pancreatic lesions.

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Background: EUS-guided FNA often results in a very limited amount of tissue and cells, and in a low percentage of neoplastic cells compared to normal cells. Detection of clonal mutations may be of additional diagnostic value for EUS-guided FNA. Standard targeted next generation sequencing (NGS) approaches lack sensitivity to detect mutations in little starting material with low tumor cell content. The aim of this study was to investigate the diagnostic value of a sensitive and reliable NGS panel with unique molecular identifiers (UMI-NGS), on EUS-FNA smears from solid pancreatic lesions with various cytological gradings according to the Bethesda criteria.
Methods: Forty EUS-FNA single slide smears of solid pancreatic lesions were selected retrospectively covering the six categories of the standardized Bethesda terminology for pancreatobiliary cytology. UMI-NGS analysis (ThermoFisher, Oncomine™ Colon cfDNA Assay) was performed on all samples. The results of both cytology and NGS analyses were compared with the definite diagnosis after surgery or at least one year of follow-up.
Results: The cytological diagnosis was correct, compared to the follow-up, in 63% of the cases. NGS analysis was performed successfully in 83% of the cases based on one smear slide with an UMI-NGS panel. UMI-NGS altered the morphological diagnosis (b5 to b6) in 2 out of 33 cases (6%). For the morphological diagnoses non-diagnostic, benign and atypical, UMI-NGS did not lead to additional malignant diagnosis whereas >50% of these cases proved malignant during follow-up.
Conclusion: In this pilot study UMI-NGS analysis was of limited additional value to the morphological evaluation of a single FNA smear. Non-diagnostic FNA smears all remained non-diagnostic after NGS. Results of UMI-NGS analysis can be helpful in diagnosing pancreatic malignancies when the pathologist is doubtful.

Comparison of two intraductal brush cytology devices for suspected malignant biliary strictures: interim-analysis of a randomized controlled trial

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Background: Endoscopic retrograde cholangiopancreatography (ERCP) with biliary brush cytology is commonly used to obtain tissue diagnosis of suspected malignant pancreatobiliary strictures. Although the specificity of brush cytology is high, sensitivity remains poor. We aimed to compare the sensitivity of two intraductal brush cytology devices in patients with a suspected malignant pancreatobiliary stricture.
Methods: We performed a randomized controlled trial in consecutive patients with suspected malignant, non-hilar biliary strictures who underwent ERCP with concomitant sphincterotomy. Patients were randomly assigned (1:1) to either the Infinity® or the RX cytology® brush. Brush specimens were placed in a standard cytology vial and transferred to the pathology department. Histopathology results (surgical specimen or biopsy of either the primary mass or distant metastasis)cytopathology results (punction of distant metastasis or endoscopic ultrasonography-guided fine-needle aspiration, EUS-FNA, of the primary mass), or clinical and/or radiological follow-up were used as reference standard. The primary endpoint was the sensitivity, defined as a brush cytology specimen showing at least suspicion of malignancy (Bethesda ≥ 4) in patients with malignant diagnosis. Secondary endpoints were overall diagnostic performance (i.e., specificity, positive and negative predictive value) and post-procedural adverse events (i.e., bleeding, cholangitis, pancreatitis). According to protocol, an interim analysis was conducted after 50% of the patients (n = 56) completed follow-up. The trial is registered at the Netherlands Trial Register, NL5234.
Results: We screened 172 patients and could randomize 56 patients between June 2016 and April 2020 *(Figure 1)*. Twenty-four patients (43%) were allocated to the Infinity® brush and 32 patients (57%) to the RX cytology® brush. Diagnosis was confirmed by histopathology in 31 patients (55%), cytopathology in 19 patients (34%), and clinical or radiological follow up in 6 patients (11%). Malignancy was diagnosed in 52 patients (93%), whereas 4 patients (7%) had benign disease. The Infinity® brush reached a sensitivity of 48%, compared to 45% for the RX cytology® brush (p=0.829, *Figure 2*). No differences in overall diagnostic performance or adverse events were observed. After interim-analysis, the study was ended prematurely because of futility.
Conclusion: The results of this study showed that the Infinity® brush is not superior to the RX cytology® brush in terms of sensitivity for diagnosing malignant pancreatobiliary strictures.

Perforations and fistulas of the gastrointestinal tract in patients with necrotizing pancreatitis in a nationwide prospective cohort

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Background: Perforation and fistula of the gastrointestinal (GI)-tract may occur in necrotizing pancreatitis. Data from large unselected patient populations on the incidence, risk factors, clinical outcomes and treatment are lacking.
Methods: We performed a post-hoc analysis of 896 patients with necrotizing pancreatitis, prospectively included in 23 Dutch hospitals (2005-2015). Perforation and fistula of the GI-tract were defined as either spontaneous or iatrogenic discontinuation of the gastrointestinal wall. Multivariable logistic regression was used to explore risk factors and to adjust for confounders in comparing clinical course of patients with or without perforation and fistula of the GI-tract.
Results: Perforations and fistulas of the GI-tract were identified in 139 of 896 (16%) patients with necrotizing pancreatitis, mostly in the duodenum (40%) and colon (64%). The incidence was 26% (n=125) in patients with infected necrosis. Independent risk factors were high C-reactive protein within 48-hours after admission (1.19 [95% CI 1.01 – 1.41]), organ-failure in the first week (OR 2.81 [95%-CI 1.80–4.39]), abdominal compartment syndrome (OR 2.61 [95% CI 1.15 – 5.90]) and infected necrosis (i.e. diagnosis before perforations and fistulas of the GI-tract) (OR 1.81 [95%-CI 1.11–2.97]). GI-tract perforation and fistula were associated with poor clinical outcomes, especially when the colon was affected. There was a higher rate of new onset organ failure (OR 2.10 [95% CI 1.07 – 4.04]), persistent organ failure (OR 4.59 [95% CI 2.00 – 10.67]), and persistent ICU stay (OR 7.48 [95% CI 2.99 – 19.44]). Pancreatitis-related mortality was 12%. Perforations and fistulas of the stomach and duodenum were treated conservatively in 23% (n=18), with drainage in 66% (n=52) and with surgical closure in 6 (8%). Colon perforations and fistulas were treated conservatively in 27% (n=4), with drainage in 23% (n=15) and with surgical treatment in 59% (n=38).
Conclusion: Perforations and fistulas of the GI-tract occur in one out of six patients with necrotizing pancreatitis. Risk factors are high C-reactive protein within 48 hours, early organ-failure, infected necrosis, and abdominal compartment syndrome. Clinical outcomes are much worse in patients with GI fistula, especially when located in the colon. More than half of the patients can, however, successfully be treated without an invasive intervention.

Adverse events of endoscopic full-thickness resection: results from the German and Dutch colorectal FTRD registry

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Background: Recently, endoscopic full-thickness resection (eFTR) is emerging as minimally invasive alternative to surgery for *en bloc* resection of complex colorectal lesions. Previous full-thickness resection device (FTRD) reports demonstrated favorable safety, however experience reported in literature remains limited and large studies representing a generalizable estimation of the risk of adverse events (AEs) are lacking. The aim of this study was to provide further insight in the occurrence of AEs following colorectal eFTR.
Methods: This is an observational study of consecutive patients included in the German and Dutch national colorectal FTRD registries between July 2015 and March 2021. All early and late AEs were analysed. Severe AEs, defined as requiring a surgical intervention, were evaluated in detail.
Results: In total 1894 eFTR procedures were analysed (1178 German and 716 Dutch cases). Indications for eFTR were early carcinomas (n=697), difficult adenomas (n=998), subepithelial tumors (n=107), diagnostic eFTR (n=16) or others (n=76). Total AE rate was 11.1% (n=211/1894; 95% confidence interval (CI), [9.7 – 12.6%]) with no significant difference between both registries (p=0.56). Perforations occurred in 2.5% (n=47/1894; 95%CI [1.8 – 3.3%]), concerning 27 direct and 20 delayed perforations. Endoscopic closure was performed in 34.0% (13 direct and 1 delayed perforation) and conservative treatment with antibiotics in 4.3% (2 delayed perforations). The rate of appendicitis for appendiceal lesions was 10.0% (n=13/130; 95%CI [5.4 – 16.5%]). In 46.2% (6/13) patients could be treated with antibiotics. Severe AE rate requiring emergency surgery was 2.3% (n=43/1894; 95%CI [1.7 – 3.0%]).
Conclusion: Colorectal eFTR is a relative safe procedure with a low overall risk for severe AEs and no fatal incidents. Patients should be well informed on the risk of a delayed perforation and secondary appendicitis.

Endoscopic vacuum therapy for patients with esophageal perforation: a muli-center retrospective cohort study

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Background: Esophageal perforations, due to vomiting (Boerhaave syndrome) or a iatrogenic cause, are associated with high morbidity and mortality. Recently, endoscopic vacuum therapy (EVT) has been introduced as a novel treatment option for esophageal perforations. This technique has so far mainly been described for anastomotic leakage after upper gastrointestinal surgery. The aim of this study was to describe the outcomes of the initial experiences with EVT for treatment of esophageal perforations caused by Boerhaave syndrome or with a iatrogenic cause.
Methods: For this retrospective, multicenter cohort study, all patients primarily treated with EVT for an esophageal perforation at three hospitals in the Netherlands and Switzerland, between January 2018 and October 2021, were included. Data on patient characteristics, EVT and outcomes were analyzed. The primary endpoint was success rate of EVT, defined as closure of the defect, as assessed by endoscopy or CT-scan.
Results: A total of 18 patients were included (10 men, mean age 70 years (SD 11.8)). In 13 patients the perforation was caused during endoscopy, in 3 patients it was due to Boerhaave syndrome, in one due to a duodenal tube placement and in one due to glass ingestion. Successful EVT was achieved in 16 patients, with 12 patients using EVT alone. Two patients received an additional intraluminal stent , one patient received additional clips and one patient underwent operative decortication with placement of an intercostal muscle flap into the pleural cavity during treatment, due to inadequate collapse of the cavity with EVT alone. In 2 patients EVT failed: one patient died unexpectedly during treatment, while good clinical and endoscopic effect of EVT was observed, and one patient with Boerhaave syndrome underwent an additional esophagectomy because the defect persisted.
Median hospital stay was 17 days. Median duration of EVT was 11 days, with a median amount of 3 EVT related endoscopies. Additional percutaneous and/or surgical drainage was performed in 6 patients. EVT associated complications occurred in 2 patients: one iatrogenic increase of the defect occurred during overtube placement, and one hemorrhage occurred, requiring blood transfusion, which spontaneously stopped.
Conclusion: EVT is a promising organ-preserving treatment for Boerhaave syndrome or iatrogenic esophageal perforation, with a success rate of 89%. Although additional endoscopic, surgical or percutaneous intervention was necessary in some cases, esophagectomy was only required in one patient. More experience with the technique and indications for use will likely improve success rates in the future.

Introduction of a 3rd generation FNB needle in community hospital practice increases quality and yield of EUS-guided TA of solid pancreatic lesions.

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Background: The Dutch Quality in endosonography team (QUEST) prospectively audits performance of EUS-guided TA procedures of solid pancreatic lesions. The American Society for Gastrointestinal Endoscopy (ASGE) has formulated three quality indicators (KPI) for EUS-guided TA according to a specific performance target: rate of adequate sample (performance target 85%), diagnostic yield of malignancy (performance target 70%) and sensitivity for malignancy (performance target 85%). Feedback on performance is provided to collaborating centers annually using these KPIs. In this study we report the effect of implementation of a 3rd generation FNB needle in one of the collaborating community hospitals on KPIs.
Methods: A prospective registration of all EUS-guided TA procedures of solid pancreatic lesions in five community hospitals in the Rotterdam region, the Netherlands started in January 2015. In hospital A, all three KPIs were obtained before and after implementation of the Medtronic SharkCore needle in January 2019.
Results: Before introduction of the new needle, the quality was below the predefined performance targets. During the 'learning period' of the first six months, the new needle was used in 50% of the cases coinciding with a temporary further decrease of KPIs. After this 6 month episode, the new needle was used in 100% of cases and the KPIs improved up to the predefined performance targets.
Conclusion: Continued registration of quality and yield proves to be of great help to monitor changes in quality, especially when new devices or methods are introduced. With the introduction of a 3rd generation FNB needle, after an initial and temporary decrease ('learning curve'), the quality of EUS-guided TA of solid pancreatic lesions improved up to the predefined performance targets.

Microbiology and antimicrobial therapy in necrotizing pancreatitis: an observational multicenter study

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Background: Antibiotics are indicated when infected necrosis is reasonably suspected. Since it remains difficult to differentiate between an inflammatory response and sepsis, an overuse of antibiotics can be expected. Furthermore, effect of antibiotics and causative pathogens of infected necrosis on clinical outcomes remains unknown.
Methods: We performed a post-hoc analysis of a prospective multicenter (15, 2010-2019) cohort of 401 patients with necrotizing. Results on microbiological cultures and antimicrobial therapy from admission until 6 months after initial admission date were analyzed.
Results: Antimicrobial therapy was started in 321/401 patients (80%) after a median of 5 (P25-P75: 1–13) days after hospitalization. Median duration of treatment was 27 (P25-P75: 15-48) days. In 225/321 patients (70%) infection was not proven. a higher mortality in those patients as compared to no *Enterococcus species* ($p<0.01$). *Enterococcus* infection was associated with new or persistent organ failure after culturing (OR3.08 [95%CI 1.35-7.29]). Yeasts were found in 24/118 patients (20%). Multidrug-resistant bacteria increased from 2% (initial culture) to 14% in subsequent cultures, with a significantly longer duration of antibiotic treatment compared to patients without a multidrug-resistant bacteria ($p=0.01$). Empirical antimicrobial therapy appeared to be inappropriate based on culturing in 64/128 patients (50%).
Conclusion: In this unselected cohort of patients with necrotizing pancreatitis, antibiotics were often started early in the disease course, mostly without a proven infection. Empirically administered antibiotics often turned out inappropriate based on microbiological cultures. Optimization of clear guidelines regarding antimicrobial therapy, with a potential role for fine needle aspiration and empirical coverage of *Enterococcus* and yeast infections, might reduce unnecessary antibiotic use and improve clinical outcomes of patients with necrotizing pancreatitis.

Time planning of colorectal endoscopic submucosal dissection at tertiary Western centers: development of a prediction model for procedure duration (cESD-TIME formula)

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Background: To overcome logistical obstacles concerning the implementation of colorectal endoscopic submucosal dissection (ESD) in Western endoscopy centers, it is essential to adequately predict and anticipate possible long procedure times. We evaluated current time planning outcomes of colorectal ESDs and developed a prediction model for ESD duration based on pre-procedural factors.
Methods: Medical records of all patients who underwent single, non-hybrid colorectal ESDs between 2011 and 2020 at 3 Dutch academic hospitals were retrospectively reviewed. Multiple imputation was used to address missing data. A prediction model for procedure duration was built using multivariable linear regression with backward selection based on $p<0.20$. Internal validation and internal-external cross validation were used to evaluate overfitting and generalizability of the model's predictive performance within the cohort.
Results: Of 492 colorectal ESDs performed during the study period (*en bloc* resection rate 85%, mean procedure duration 138 minutes), 449 procedures were eligible for analysis. Performance of current unstandardized time scheduling practice was suboptimal (explained variance 27%). We successfully validated a previously published Asian prediction model for colorectal ESD duration >60 minutes (Gastrointest Endosc. 2021;94(1):133-144; area under the receiver operating characteristic curve 0.70, 95%-confidence interval (95%-CI) 0.62-0.77). However, the model was of limited use due to dichotomization of the outcome and a relatively low prevalence (16%) of ESDs completed <60 minutes. We developed a new 8-variable model (cESD-TIME formula) using procedure duration as continuous outcome and the following predictors: naive or recurrent lesion, suspected invasive cancer, inflammatory bowel disease, gross morphology, presence of a depressed area, lesion size, luminal circumference and consecutive ESD number of the endoscopist. The explained variation by the cESD-TIME formula was 64% (bootstrapped 95%-CI 62-67%). Validation showed minimal overfitting (bootstrapped mean optimism 0.009) and good model generalizability (R^2 range 53-67% across centers).
Conclusion: The cESD-TIME formula has the potential to be a pragmatic prediction tool for colorectal ESD duration at Western endoscopy centers.

Real-time characterization of colorectal polyps using artificial intelligence – A prospective pilot study comparing two computer-aided diagnosis systems and one expert endoscopist

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Background: Artificial intelligence has great potential in image analysis in gastrointestinal endoscopy. Aim was to evaluate the real-time diagnostic performance of our image-based Artificial Intelligence for ColoRectal Polyps (AI4CRP) computer-aided diagnosis system for the optical diagnosis of diminutive colorectal polyps (CRPs) and to compare it with CAD EYE and an expert endoscopist.
Methods: This prospective real-time pilot study was conducted in a Dutch tertiary referral hospital between August and November 2021. AI4CRP was developed using convolutional neural networks and previously trained (734 CRPs) and tested (86 CRPs). AI4CRP performance was compared with CAD EYE© (Fujifilm, Tokyo, Japan) and one expert endoscopist unaware of the AI outcomes. Both AI systems ran simultaneously and used blue light imaging (BLI) for characterizing CRPs, as did the endoscopist. Histopathology was used as gold standard. CRPs were characterized as hyperplastic (hyperplastic polyps) or neoplastic (adenomas and sessile serrated lesions [SSLs]) by AI4CRP and the endoscopist, and as hyperplastic (hyperplastic polyps and SSLs) or neoplastic (adenomas) by CAD EYE. Inconclusive diagnoses for CAD EYE (assessed by two expert endoscopists blinded for histopathology results), were excluded. Enabling self-critical AI, a post hoc analysis was performed excluding low confidence classification values of AI4CRP (40% around the cut off value of 0.6).
Results: Real-time testing included 30 patients with 51 CRPs (32 adenomas, 6 SSLs, 12 hyperplastic polyps). AI4CRP had a diagnostic accuracy of 80.4%, sensitivity of 82.1%, and specificity of 75.0%. The self-critical AI4CRP (n=37) had a diagnostic accuracy of 89.2%, sensitivity of 89.7%, and specificity of 87.5%. CAD EYE was inconclusive in two cases and had a diagnostic accuracy of 83.7%, sensitivity of 74.2%, and specificity of 100.0%. The expert endoscopist had a diagnostic accuracy of 88.2%, sensitivity of 94.9%, and specificity of 66.7%, outperforming both AI systems in sensitivity.
Conclusion: Our AI4CRP system achieved promising results for the optical diagnosis of CRPs. Diagnostic performances of CAD EYE were higher compared to AI4CRP, but CAD EYE was unable to refrain from generating a diagnosis for inconclusive cases. In contrast, AI4CRP provides a calibrated confidence in the classification value, giving the ability to reject the classification in case of uncertainty. Thereby, it enables better interpretability of the AI output and optimizes physician-AI interaction. Furthermore, AI4CRP's classification of SSLs as neoplastic is more in line with SSLs' malignant potential and clinical practice. Further improvement of both AI systems is therefore necessary.

Real-time use of a computer-aided diagnosis system for optical diagnosis of diminutive colorectal polyps including sessile serrated lesions: a prospective, multicenter study with benchmarking against screening endoscopists

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Background: The accuracy of endoscopic characterization of diminutive (1-5mm) colorectal polyp histology varies greatly between endoscopists. We aimed to reduce this variability by developing and validating a robust computer-aided diagnosis (CAD) system, designed to use in real-time colonoscopy, including sessile serrated lesions (SSLs).
Methods: We developed a CAD system (POLyp Artificial Recognition [POLAR] system) to characterize diminutive colorectal polyps during live endoscopy, using a maximum of three non-magnified narrow-band imaging images. For pre-training the Microsoft-COCO dataset with a broad range of object images (>300k) was used. For training, the prospectively collected data of 8 hospitals was used (2.637 annotated images from 1,339 polyps). For clinical validation, POLAR was tested in patients that underwent colonoscopy in the setting of a fecal immunochemical test (FIT) screening setting, and compared with the performance of 20 endoscopists from 8 hospitals. Primary outcome was the accuracy of differentiating neoplastic (i.e. adenomas, SSLs) from non-neoplastic (i.e. hyperplastic polyps) diminutive polyps by POLAR, compared with the accuracy of endoscopists. Histopathology served as referencer standard.
Results: During clinical validation, a total of 429 diminutive polyps detected in 195 FIT-positive patients were included for analysis. POLAR differentiated neoplastic from non-neoplastic lesions with 79% accuracy, 89% sensitivity and 37% specificity, while endoscopists achieved 83% accuracy, 93% sensitivity, and 44% specificity. No significant difference was observed in optical diagnosis accuracy between POLAR and endoscopists (*P*=.07). Success rate for acquiring a histological prediction by POLAR was 98%.
Conclusion: We developed, clinically validated, and benchmarked a trustworthy CAD system for optical diagnosis of diminutive polyps during real-time colonoscopy. This system differentiated neoplastic from non-neoplastic diminutive polyps with an accuracy comparable to screening endoscopists, with near-perfect technical efficacy

Trust in artificial intelligence – do confidence scores increase the appropriate trust of a medical doctor in computer-aided diagnosis systems?

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Background: Optical diagnosis of colorectal polyps (CRPs) by medical doctors (MDs) remains challenging. This motivated the development of computer-aided diagnosis systems (CADx) to assist MDs during in-vivo assessment of CRPs. Such systems will not operate in a stand-alone fashion in clinical practice but in conjunction with the MD. Hence, (appropriate) trust in CADx is necessary to warrant an optimal joint performance. Aim of this study was to investigate whether adding a calibrated classification confidence to CADx predictions improves the (appropriate) trust of MDs.
Methods: MDs optically diagnosed 60 CRPs as benign or (pre-)malignant in an online study. Each CRP was first diagnosed without CADx prediction. Then, the same CRP was shown with CADx prediction, which was either only a classification, or a classification accompanied by a confidence score. A classification score of 0 represented a benign and 100 a (pre-)malignant lesion. The CADx was calibrated and set to achieve a diagnostic accuracy and NPV of approximately 90%. Trust in CADx was measured by: (1) the MD's CADx prediction utilization when the MD initially disagreed with the CADx and (2) the change in the MD's decision certainty after not following the CADx prediction. Data was analyzed using multi-level regressions, controlling for, i.a., MD experience and expertise, CRP characteristics, and MDs' previous experience with AI.
Results: In total, 17 gastroenterologists and 6 residents participated. MD's diagnostic accuracy increased when a CADx prediction was presented (69.3% to 76.6%, $P<0.001$), as well as MD's sensitivity (82.2% to 90.1%, $P<0.001$). When the CADx confidence scores surpassed 60, presenting the confidence score led to a significantly higher probability of CADx prediction utilization (0.78 vs. 0.27). This indicates that the CADx utilization was highest for (pre-)malignant CADx classifications with a score >60, signifying the switch from a benign to (pre-)malignant classification. When the CADx prediction was not utilized, and the CADx confidence score surpassed 60, presenting the confidence score yielded a bigger drop in MD certainty (-1.15 vs. -0.68). This indicates that dismissing a (pre-)malignant CADx prediction with a score >60, and thus retaining a benign classification, decreases the MDs' certainty most. Based on our first analyses, there does not seem to be an effect for the lower CADx scores (and thus benign CADx predictions).
Conclusion: Presenting a CADx prediction increased MD sensitivity by 8%. Showing CADx' classification confidence scores >60 influenced the MDs to use the CADx prediction more, and led to a lower decision certainty when the CADx prediction was not used.

A robust and compact deep learning system for primary detection of early Barrett's neoplasia outperforms general endoscopists

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Background: Endoscopic detection of early neoplasia in Barrett's esophagus (BE) is difficult. Computer Aided Detection (CAD) systems may assist in neoplasia detection. For successful implementation, CAD systems require robust training and compact software to enable realtime application.
Aim: to evaluate the performance of a robust, compact CAD system for endoscopic detection of early BE neoplasia.
Methods: This CAD system was constructed to enable realtime usage on endoscopic platforms using limited computational resources. The CAD system was pretrained using ImageNet followed by domain specific pretraining using GastroNet, a dataset consisting of 494.364 images of wide endoscopic variety. The system was trained and validated using two large datasets from 12 centers to increase heterogeneity and robustness of the training. The training dataset consisted of 1.480 images (435 pts) of early BE neoplasia and 2.333 images of non-dysplastic BE (NDBE; 592 pts). The validation dataset consisted of 233 neoplastic (129 pts) and 374 NDBE images (73 pts). After training and validation, the CAD system was tested on three independent testsets. The first testset contained 50 neoplastic and 150 NDBE images (1 image/pt). This testset was enriched with subtle neoplastic lesions to evaluate CAD performance for challenging cases and was benchmarked by 42 international general endoscopists as a reference for CAD performance. The second testset consisted of 50 neoplastic and 50 NDBE images (1 image/pt) and represented a general distribution of neoplastic lesions. Finally, a third independent prospectively collected testset contained 50 neoplastic and 150 NDBE images (39 and 74 pts). Outcome parameters: Diagnostic accuracy of the CAD system (neoplastic or NDBE); Correct localization of neoplasia on testset #1; Correct classification and localization by endoscopists on testset #1.
Results: Sensitivity and specificity of the CAD system on testset #1 were 84% and 66% resp. Endoscopists reached a sensitivity and specificity of 64% and 87%, resp. The CAD system detected 20% more subtle lesions than endoscopists. Localization performance of the CAD system and endoscopists was high (97% vs. 95%). Diagnostic accuracy of the CAD system on testset #2 and #3 was higher, with a sensitivity of 100% and 88%, resp.
Conclusion: We report the results of a CAD system for Barrett's neoplasia trained with the largest reported number of Barrett's images obtained from 12 centers to improve heterogeneity of training and the robustness of the algorithm. The CAD system detected nearly all early Barrett's lesions and clearly outperformed endoscopists in terms of sensitivity of more subtle lesions with an absolute increase of 20%.

Near-infrared fluorescence molecular endoscopy shows promising results in detecting dysplastic esophageal lesions using topically administered fluorescent tracers.

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Background: Esophageal cancer (EC) is the 6th leading cause of cancer-related deaths. The poor EC survival is attributed to insufficient methods for premalignant lesion detection and therefore there is a great need for new endoscopic techniques that can visualize early-stage lesions. In 2017 our group published promising results using near infrared fluorescent molecular endoscopy (NIR-FME) to improve early (pre)malignant lesion detection. Here we show the preliminary results of the phase II study.

Methods: We aim to evaluate the tracer, bevacizumab-800CW, in comparison to cetuximab-800CW and indocyanine green (ICG) in combination with NIR-FME for detecting (pre)malignant lesions in patients with Barrett's esophagus (BE) referred to a Barrett expert center. Each of the tracers was used during a surveillance or therapeutic endoscopy procedure in the same patient. The tracers were topically administered to patients and NIR-FME was performed after 5 minutes. To quantify the intrinsic fluorescent signal, we used spectroscopy measurements both in vivo and ex vivo. In case of additional fluorescent lesions biopsies were taken to analyze if dysplasia was present. The day after the endoscopic procedure the endoscopic mucosal resection (EMR) specimen was analyzed with widefield back-table imaging.

Results: In our preliminary results, 62 patients were included and topical-based NIR-FME detected all dysplastic lesions. Additionally, in 17 patients, this endoscopic technique identified in total 19 additional lesions which were not visualized by high-definition white light endoscopy (HD-WLE) and narrow band imaging (NBI) inspection. In 34 patients spectroscopy results were analyzed. Within a subset of 23 patients, with bevacizumab-800CW administered, both visible lesions and additional lesions showed a significantly ($P < 0.001$) higher mean intrinsic fluorescence compared to Barrett's tissue, 0.073 ± 0.015, 0.064 ± 0.017, 0.018 ± 0.005 respectively. In a subset of 11 patients, with cetuximab-800CW administered, both visible lesions and additional lesions showed a significantly ($P < 0.001$) higher mean intrinsic fluorescence compared to Barrett's tissue, 0.017 ± 0.005, 0.018 ± 0.001, 0.011 ± 0.003 respectively.

Conclusion: VEGF-A guided NIR-FME detected 19 additional (pre)malignant lesions in 17 patients out of 62 BE patients, showing that this 'red flag' imaging technique even in a Barrett expert center improves early lesion detection compared with HD-WL/NBI endoscopy. Cetuximab-800CW can detect additional lesions but has lower TBR's compared to bevacizumab-800CW. Currently patients for the ICG group are being included and preliminary results are expected soon.

Endoscopic follow-up of radically resected submucosal adenocarcinoma in Barrett's esophagus: early results of an ongoing prospective, international, multicenter cohort registry (PREFER trial)

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Background: Current guidelines advise esophagectomy for submucosal esophageal adenocarcinoma (T1b EAC). However, data from retrospective studies suggest that endoscopic follow-up (FU) may be a valid alternative in patients without signs of lymph node metastases (LNM) at baseline. We aim to evaluate the safety of a watchful waiting strategy with regular endoscopic FU in patients treated endoscopically for T1b EAC.

Methods: This international, multicenter, prospective cohort study (NL6116501817), conducted in 17 hospitals in Europe and Australia, aims to include 141 patients with 5-year FU. After radical endoscopic resection of T1b EAC, patients are re-staged with EUS and CT/PET. In the absence of LNM or distant metastases (N0M0), and upon consent for endoscopic FU management, patients are included and undergo a strict endoscopic FU strategy with gastroscopy and EUS every 3 months during year 1 and 2, every 6 months during year 3 and 4, and annually thereafter. A CT/PET is performed after 1 year. We divided our cohort into two groups: high-risk (submucosal invasion ≥500um, poorly/undifferentiated tumor (G3-4) and/or lymphovascular invasion (LVI+)) and low-risk (invasion <500um, well/moderate differentiation (G1-2) and LVI-). Primary outcome parameters are 5-year disease specific survival and overall survival; secondary outcome parameters are rate of LNM and local recurrence.

Results: Since July 2017, 79 patients (66 men, median age 70 yrs) were included with a median FU of 19 (IQR 11-30) months: 50 high-risk and 29 low-risk patients. Three patients (4% [95%CI 0-8.1]) were diagnosed with LNM, 2/50 high-risk (4% [95%CI 0-9.6]) and 1/29 low-risk (4% [95%CI 0-10.5]). Two patients underwent neoadjuvant chemo(radio)therapy with esophagectomy (ypT0N0M0 and ypT0N1M0) and one patient underwent selective surgical resection of the tumor-positive lymph node. Four patients (5% [95%CI 0-10.0]), 3/50 high-risk (6% [95%CI 0-12.8]) and 1/29 low-risk (4% [95%CI 0-10.5]), were diagnosed with an intra-luminal tumor recurrence not amenable to endoscopic re-treatment; all four were referred for esophagectomy (pT1bN0M0 and pTisN0M0). Two patients refused additional treatment. No distant metastases were diagnosed during FU. Two patients died, both non EAC-related deaths. One patient discontinued FU due to old age.

Conclusion: Early data from our ongoing prospective study suggest that in patients with radically removed high- or low-risk T1b EAC, without LNM at baseline, a strict endoscopic follow-up protocol is feasible and curative surgery remains possible in those patients who develop LNM (4%) or a local intra-luminal recurrence (5%) during FU. Most patients demonstrate uneventful FU.

EUS-guided gastrojejunostomy shows higher clinical success and lower dysfunction rate in comparison with duodenal stents in malignant gastric outlet obstruction: An international multicenter propensity score matched comparison

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Background: Malignant gastric outlet obstruction(GOO) has been historically managed by duodenal self-expendable metal (SEMS) placement. Duodenal stents, however, are prone to recurrent GOO because of tumor ingrowth. EUS guided gastrojejunostomy (EUS-GJ) is emerging as a novel technique which potentially leads to less recurrent GOO. Advantages over SEMS have been evaluated in retrospective studies with poor control for confounders. Our aim was to compare efficacy, safety and dysfunction rate of EUS-GJ and duodenal SEMS in a cohort of patients with GOO using propensity-score matching.

Methods: We conducted an international multicenter retrospective analysis of all consecutive patients undergoing either duodenal SEMS placement or EUS-GJ for a malignant GOO between 2015 and 2021 in 3 European centers. Patients with follow-up < 30 days were excluded. Primary outcomes were clinical success (possibility to eat at least soft solids after the procedure or GOO scoring system (GOOSS) ≥2) and stent dysfunction (recurrence of obstructive symptoms (GOOSS≤1) after initial clinical success). A propensity score-matched (1:1) analysis was performed using age, sex, underlying disease, disease stage, ascites and peritoneal carcinomatosis as variables, with a maximum propensity-score difference of 0.05.

Results: A total of 224 patients were identified receiving either EUS-GJ (107) or SEMS (107). After propensity-score matching, 176 patients (88 per arm) were matched and compared. Mean age was 66 years (SD: ±11.8), 54% was female, 58% had pancreatic cancer, 32% peritoneal metastasis and 35% ascites. No significant differences in baseline characteristics were detected. Technical success was similar for EUS-GJ and duodenal SEMS(94.3 % vs. 97.7%, p=0.44). Clinical success was achieved in 90,9% in the EUS-GJ group and 75% in the SEMS groups (OR=3.33 [95%CI=1.39-8.00], p=0.008). Stent dysfunction occurred in 1.3% vs. 25.8% respectively(OR=0.04; 95%CI=0.01-0.28, p<0.001). Overall incidence of adverse events (10.2% vs. 20.5%, p=0.093) and severe adverse events (4.5% vs. 3.4%) did not differ.

Kaplan-Meier analysis showed higher probability of dysfunction free survival for EUS-GE (HR=27.4. [95%CI 4.2-28.2], with a 6-months' probability of remaining recurrence-free of 100% versus 65.0% in SEMS

Conclusion: EUS-GJ resulted in higher initial clinical success and lower stent dysfunction rates with comparable safety in comparison with duodenal SEMS. These data suggest that EUS-GJ may be preferred over duodenal SEMS in patients with a malignant gastric outlet obstruction.

Fluorescent labelled vedolizumab for real-time visualization and quantification of local drug distribution and pharmacodynamics in inflammatory bowel diseases during endoscopy

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Background: Vedolizumab is a monoclonal antibody which blocks integrin α4β7 inhibiting trafficking of T-lymphocytes into the gut. Unfortunately, up to 60% of vedolizumab patients experience non-response. The mechanism of action of vedolizumab is not elucidated, predictors of response are unknown and data for local drug distribution in the gut are lacking. In this clinical trial, we investigated the feasibility of assessing local distribution of fluorescently labelled vedolizumab in the gut mucosa of inflammatory bowel diseases (IBD) patients to finally enable prediction of therapy response in individual patients.

Methods: Vedolizumab (Entyvio, Takeda Pharma) was labelled to IRDye 800CW under cGMP conditions to yield clinical grade vedolizumab-800CW. In this dose-escalation trial, vedolizumab naïve IBD patients and IBD patients treated with vedolizumab for at least 14 weeks were included. Patients received an intravenous dose of fluorescently labelled vedolizumab of either 0 mg, 4.5 mg, 15 mg or 15 mg + 75 mg unlabelled vedolizumab 3 days prior colonoscopy. In vivo fluorescence imaging was assessed by fibre-based wide-field fluorescence molecular endoscopy (FME) and quantified by spectroscopy in healthy, mildly inflamed and severely inflamed tissue. All assessed tissue was biopsied for ex vivo examination of the fluorescent signal, fluorescence microscopy and spectroscopy.

Results: Up to submission 34 patients completed tracer injection and FME. An interim analysis was performed after 20 patients (5 in each dose group), which showed in severely inflamed tissue an 8 fold higher fluorescent signal in the 15 mg dose group (0.049 Q*μfa,x [mm-1]) compared to the control group (0.006 μfa,x [mm-1]) ($p<0.05$). Furthermore, the fluorescent signal within the 15 mg dose group was also 2.5 fold higher compared to healthy tissue (0.019 Q*μfa,x [mm-1]) ($p<0.05$).The addition of unlabelled vedolizumab gave similar results to the 15 mg group ($p>0.99$), suggesting that the drug target was still not saturated. The optimal dosage group of 15 mg was expanded up to 18 IBD patients, amongst them 6 IBD patients after 14 weeks of treatment regimen. Fluorescence microscopy showed clustering of fluorescent signals especially in inflamed mucosa. Additional experiments to detect vedolizumab target cells are ongoing.

Conclusion: In vivo visualization of fluorescent vedolizumab revealed a clear dose-dependent correlation between mucosal drug concentrations and the severity of mucosal inflammation. Fluorescence molecular endoscopy is a promising novel tool to get insight in drug distribution in IBD, detect target cells, assess target engagement and possibly predict therapy response in individual patients.

Incidence of pancreatic cancer within pancreatic cystic neoplasm: 6-year reults from a nationwide pathology database.

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Background: Pancreatic cystic neoplasms (PCN), including both intraductal papillary mucinous neoplasm (IPMN) and mucinous cystic neoplasm (MCN), are precursor lesions for pancreatic ductal adenocarcinoma (PDAC) and thereby pose an opportunity for early detection and curative treatment. The aim of this nationwide retrospective study was to investigate the incidence of PDAC arising from PCN as well as the incidence of PDAC as opposed to PCN in the Netherlands.
Methods: Clinical information from all patients who underwent pancreatic resection for PDAC between 2013 – 2018 was retrieved from the Netherlands Cancer Registry (NCR) and matched with the corresponding pathology reports from the automated national pathology database (PALGA). Primary outcome was the incidence of PDAC arising from PCN. Secondary outcomes were the overall survival between primary PDAC and PDAC arising from PCN, and the incidence PDAC as opposed to PCN.
Results: After assessing 2405 patients for eligibility, 1991 patients after pancreatic resection were included (*Figure 1*). Primary PDAC was diagnosed in the majority of patients (n = 1819, 91%), of which 50 patients (3%) had PDAC as opposed to PCN. Invasive PCN was diagnosed in 180 patients (9%), the majority being invasive IPMN (n=168, 8% of total cohort, *Figure 1*). Significantly more patients with primary PDAC received perioperative chemo- or radiotherapy when compared to patients with PDAC arising from PCN (p=0.009 and p=0.037, respectively, *Figure 2*). Overall survival was significantly higher in patients with PDAC arising from PCN (53% vs. 24%, p=0.000) after a median follow-up period of 534 days (IQR 318-894) from diagnosis. This difference remained significant when adjusted for TNM stage in Cox regression analysis (Hazard ratio 0.530 [95%CI 0.422-0.665]).
Conclusion: This nationwide cohort study showed that 9% of resected PDAC was diagnosed as PDAC arising from PCN. Patients with PDAC arising from PCN showed longer survival when compared to patients with primary PDAC.

Computer-Aided Decision support and 3D modelling in pancreatic cancer

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Background: Pancreatoduodenectomy is the cornerstone of curative treatment for patients diagnosed with pancreatic head cancer. Preoperative planning is essential to account for vascular involvement of the tumour or aberrant arterial anatomy. However, assessment of vascular involvement on multi-phase CT requires specific expertise and can be challenging. Computer-aided detection (CAD) algorithms and 3D-visualization techniques are potentially valuable assets to overcome the current challenges in diagnosis and optimal treatment of pancreatic cancer.
This study assesses the added value of autostereoscopic three-dimensional patient models and computer-aided detection (CAD) in radiological evaluation of pancreatic cancer.
Methods: This pilot study included 13 expert hepatopancreatobiliary surgeons and one expert radiologist from eight different hospitals. All participants assessed six pancreatic cancer cases in a simulated setting under 3 different test conditions. Conditions consisted of assessment using regular CT-scan (CT-condition), assessment using CT and 3D patient models (3D-condition) and assessment using CT, 3D patient models and CAD (CAD-condition). Each participant assessed three resectable cases and three borderline resectable cases. Primary outcome was quality of surgical planning compared to baseline.
Results: Participants experienced an improved ability to accurately detect pancreatic tumours and determine the degrees and length of tumour-vessel contact using 3D and CAD compared to the standard CT evaluation. Additionally, a higher perceived ability to identify, localize and understand anatomical relationships was reported in the 3D group. Lower degrees of tumour-vessel contact were reported in the CAD group compared to the standard CT group. Furthermore, participants had a higher confidence in assessing the need for a vascular resection in the 3D group compared to the control group.
Conclusion: This study shows that 3D patient models and CAD could be additives in assessment of pancreatic tumours and that it improves trust. CAD and 3D imaging may be used to further improve accuracy of pancreatic tumour detection in daily practice.

Mucinous type gastric cancer: a distinct entity

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Background: Mucinous type gastric cancer (mucGC) has been associated with advanced tumor stages and unfavorable prognosis in patients treated with surgery only. The effect of perioperative chemotherapy on mucGC however, is largely unknown. Here, we present the tumor characteristics and survival of intestinal type (intGC), diffuse type (difGC) and mucGC in cohorts of patients treated with curative intent before and after the introduction of perioperative chemotherapy.
Methods: All available histological slides were collected from patients included in either the Dutch D1/D2 trial (1989-1993) or the CRITICS trial (2007-2015). In the D1/D2 trial, patients underwent a gastrectomy without (neo-)adjuvant treatment. Patients in the CRITICS trial received neo-adjuvant chemotherapy and either adjuvant chemotherapy or chemoradiation. Histological tumor types and tumor regression grade (TRG; CRITICS trial only) were determined and correlated with overall survival (OS).
Results: In the D1/D2 trial, 33 of the 549 evaluable tumors were mucGC (6%), 343 (62%) intGC and 173 (32%) difGC. Advanced tumor stage (pT3/pT4) and lymph node metastases (pN+) occurred more frequently in mucGC compared to intGC and difGC (81% vs 58% and 69%; p=0.002 and 76% vs. 53% and 66%; p=0.002, respectively). In the CRITICS trial, 64 of the 685 evaluable tumors were mucGC (9%), 286 intGC (42%) and 335 difGC (49%). ypT and ypN stage was available for 564 patients, TRG for 508 patients. ypT3/ypT4 occurred in 67%, 57% and 73% of mucGC, intGC and difGC. (p<0.001) ypN+ was more frequently in mucGC compared to intGC and difGC (61% vs. 44% and 54%, respectively; p=0.018). In mucGC 38% had a (near) complete response (TRG1-2) compared to 26% in intGC and 10% in difGC. (p<0.001). In the D1/D2 trial 5-year OS was 33% in mucGC, 48% in intGC and 39% in difGC (p=0.24). In the CRITICS trial 5-year OS was 52% in mucGC, 51% in intGC and 33% in difGC (p<0.001).
Conclusion: Our results show that mucGC is a distinct subtype of GC compared to intGC and difGC. Patients with mucGC more often present with advanced tumor and lymph node stage (pT3/pT4 and pN+) and are associated with unfavorable outcome compared to intGC and difGC when treated with surgery only. However, mucGC showed highest (near-)complete pathological response rate after neo-adjuvant chemotherapy and had a similar OS as intGC after perioperative treatment. MucGC should therefore be categorized as a unique histological subtype within the Lauren classification. These results will be validated using nationwide data from the Netherlands Cancer Registry and the Dutch Pathology Registry.

Diagnostic yield using a FIT-based risk model was not better than FIT only: a randomized controlled trial in the second round of the Dutch colorectal cancer screening programme.

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Background: The sensitivity of the Fecal Immunochemical Test (FIT) for detecting advanced neoplasia (AN) is suboptimal. Combining FIT with other risk factors for AN may increase the yield of screening. We conducted a randomized controlled trial to compare a previously developed risk model including FIT, age, sex, smoking status, and family history of colorectal cancer (CRC) with FIT only for colonoscopy selection in second-round participants of the Dutch CRC screening programme.
Methods: 22,748 individuals aged 56 to 75 years old were pre-randomized to the risk model group or to the FIT-only group and were invited to participate in the study via a mailed informed consent form. After informed consent, both groups received a FIT invitation through the Dutch CRC screening program. Those allocated to the risk model group were separately invited to complete a short questionnaire on smoking and family history of CRC. Study participants with a positive FIT result (cut-off: 15 µg Hb/g feces) and/or a risk-positive result (risk cut-off: 0.10 on a scale from 0 -1) were referred for colonoscopy. Primary outcome measure was the proportion of invitees in whom AN was detected.
Results: 3,113 of the 11,364 invitees participated and returned the FIT and the questionnaire in the risk model group, while 3,061 of the 11,348 invitees participated and returned a FIT in the FIT-only group (27.4% versus 27.0%, $p = 0.49$). Median age in the risk model group was 59 years (IQR: 57 – 61); 18.7% had a family history of CRC, and 9.6% were current smokers. AN was detected in 42 of the 164 participants (25.8%) who underwent a colonoscopy in the risk model group and in 39 of 146 participants (26.7%) in the FIT-only group. The yield of AN was 3.70 per 1,000 invitees in the risk model group versus 3.44 in the FIT-only group (difference: 0.26; 95% CI: -1.29 to 1.81; $p = 0.83$).
Conclusion: Screening with a FIT-based risk model including several risk factors for AN did not increase the detection of AN compared with FIT-only screening. Although overall participation in both groups was substantially lower than that in our nation-wide screening program (71%), addition of a questionnaire did not result in lower participation in the risk model group. Limited variability in participants' age in this study group and a lower proportion of smokers than anticipated could have contributed to the absence of an incremental yield of risk-based colonoscopy selection (ClinicalTrials.gov NCT04490551).

Perioperative outcomes, survival and quality of life after distal versus total D2-gastrectomy for gastric cancer: a side-study of the multicenter randomized LOGICA-trial.

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Background: Distal gastrectomy (DG) is selectively performed in gastric cancer patients, and may be associated with less morbidity compared to total gastrectomy (TG). However, most evidence originates from retrospective Eastern studies without neoadjuvant therapy and quality of life (QoL) assessments. This study aims to assess perioperative outcomes and QoL for Western gastric cancer patients undergoing DG versus TG, while safeguarding oncological effectiveness.
Methods: This is a side-study of the LOGICA-trial, a multicenter randomized trial comparing laparoscopic versus open D2-gastrectomy for resectable gastric cancer (cT1–4aN0–3bM0) in 10 Dutch hospitals. The randomization procedure stratified for extent of resection (DG/TG) and hospital. DG was performed for distal/middle tumors. Proximal, diffusely located and diffuse type tumors were treated with TG. The primary outcome was overall postoperative complication rate for DG versus TG. Secondary, individual complications, mortality, operating time, blood loss, hospital admission, radicality, lymph node yield, 1-year survival and QoL were assessed for both groups.
Results: Between 2015–2018, 211 patients underwent DG (n=122) or TG (n=89), and 75% of patients underwent neoadjuvant chemotherapy. Patients undergoing DG were older, had more comorbidities, less diffuse type tumors and lower clinical T-stage compared to TG patients (p<0,05). DG showed shorter operating time and lower blood loss compared to TG (p<0,05). Patients selected for DG had lower overall complication rate (34% versus 57%; p<0,001) compared to TG patients, which persisted (p<0,001) after correcting for baseline differences. Anastomotic leakage (3% versus 19%), pneumonia (7% versus 23%), atrial fibrillation (4% versus 14%) and overall Clavien-Dindo grading were lower after DG versus TG (p<0,05), whereas other complications and 30-/90-day mortality were comparable. Median hospital (6 versus 8 days) and ICU-stay were shorter for DG versus TG (p<0,05). Patients selected for DG had higher R0-resection rate and larger marginal distances compared to TG patients (p<0,05), whereas lymph node yield was comparable (p=0,490). After correcting for baseline differences, 1-year survival was similar for DG versus TG (p=0,109). QoL was better after DG versus TG in 6/7 domains and 13/17 symptom scales (95% CI≠1).
Conclusion: Both DG and TG are safe and effective in Western gastric cancer patients. For selected patients and if oncologically feasible, DG should be preferred over TG due to better perioperative outcomes and QoL, while oncological effectiveness was safeguarded in this selected DG group. TG is a safe and effective alternative if adequate oncological control cannot be achieved with DG.

The course of pain and dysphagia after radiofrequency ablation for Barrett's esophagus related neoplasia

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Background: Radiofrequency ablation (RFA) is an effective treatment for eradication of Barrett's esophagus (BE) related neoplasia, but little is known on the course of pain and dysphagia after RFA. The aim of this study was to describe the course of post-RFA symptoms and to identify possible risk factors thereof.
Methods: In this multicenter, observational cohort study, all RFA procedures registered in a prospective database on patient tolerability of endoscopic treatment for BE neoplasia were included. Patient and treatment characteristics were collected from medical records and patients self-registered post-procedural symptoms in an electronic symptom diary for 14 days after RFA. Outcome parameters were pain (defined as the maximum value of 2 diary questions regarding retrosternal pain, in rest and when eating, ranging from 0-10), major pain (pain score of 4 or higher), and dysphagia (present/absent). Mixed model regression was used for the analyses.
Results: In total, 255 diaries were filled out. Post-RFA pain was reported for 95% (95%-CI 93-98) of procedures (median duration 14 days; p25-p75 11-14) and major pain for 64% (95%-CI 58-69; median duration 8 days; p25-p75 3-13). Post-procedural pain significantly increased with BE segment length, younger age, and if no prior ablation was performed. Age, BE segment length, sex, prior ablation and RFA device type all resulted in a different course of pain. Dysphagia was present after 83% (95%-CI 79-88) of RFA procedures (median duration 13 days; p25-p75 9-14). The risk of dysphagia decreased with age and increased when patients experienced more pain.
Conclusion: RFA treatment for BE related neoplasia is a significant burden for patients and post-procedural symptoms should be taken into account when counseling patients before starting endoscopic eradication therapy.

Predictors of health related quality of life and associated symptoms in patients with Barrett Esophagus

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Background: Barrett's esophagus (BE) is a premalignant condition that affects patients' Health related Quality of life (HRQoL). This HRQoL may be influenced by symptoms of reflux or dyspepsia and the risk of developing esophageal adenocarcinoma. We aim to predict factors associated with a higher burden of the diagnosis BE, and assess the generic and disease specific QoL in Dutch patients with non-dysplastic BE. A previous review suggested delivering a focused BE-specific service for all BE patients. Therefore, we aim to compare outcomes of patients from specialized BE centers with non-expert centers.

Methods: In this multi-center cross-sectional study, HRQoL of a previously defined group of patients, were assessed by using questionnaires: Short Form 36 (SF-36), Hospital Anxiety and Depression Scale (HADS), Cancer worry Scale, and Reflux Disease Questionnaire. Data on SF-36 and HADS were compared to an age and gender matched Dutch norm population. A multivariable, linear regression analysis was used for the development of a prediction model on burden of disease of the BE diagnosis according to the Illness perception scale. Outcome parameters of patients from expert centers were compared to non-expert centers.

Results: A total of 859 BE patients, off which 640 from BE expert centers (mean age 63.6 and 74.5% male) were included for analysis. BE patients scored similar or higher means (e.g. better) on generic HRQoL in comparison with a Dutch norm population. GERD symptoms were reported in the minority (22.4%) of BE patients; 2.8% of patients reported severe GERD symptoms. Levels of anxiety of BE patients were comparable to a Dutch norm population (3.7 versus 3.9 p .183). In addition, BE patients reported less signs of depression (6.8 versus 7.6 p <.001). The multivariable prediction model showed that 45% (R^2 0.456) variation in change in burden of BE could be explained by cancer worry, GERD symptoms, signs of anxiety and depression, and female gender. In general, there were no differences found on HRQoL outcomes between expert centers with special designed BE care pathways and non-expert centers for NDBE patients.

Conclusion: The Dutch multi-center BE population scored similar or better on generic HRQoL, anxiety and depression than an age and gender matched norm population. The presence of cancer worry, GI symptoms, anxiety and depression, and female gender are predictors for more burden of the diagnosis BE.

Comparison of proactive and conventional treatment of anastomotic leakage in rectal cancer surgery; a multicenter retrospective cohort series

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Background: Comparative studies on efficacy of treatment strategies for anastomotic leakage (AL) after low anterior resection (LAR) are almost non-existing. This study aimed to compare different proactive and conservative treatment approaches for AL after LAR.
Methods: This retrospective cohort study included all patients (Feb 2009 - Apr 2020) with AL after LAR in three university hospitals. Different treatment approaches were compared, including a pair-wise comparison of conventional treatment and endoscopic vacuum assisted surgical closure (EVASC). Primary outcomes were healed and functional anastomosis rates at het end of follow-up.
Results: Overall, 103 patients were included, of which 59 underwent conventional treatment and 23 EVASC. Median number of reinterventions was 1 after conventional treatment, compared to 7 after EVASC ($p<0.01$). Median follow-up was 39 and 25 months, respectively. Healed anastomosis rate was 61% after conventional treatment, compare to 78% after EVASC ($p=0.139$) and functional anastomosis rate was higher after EVASC, compared to conventional treatment (78% vs 54%, $p=0.045$). Total length of stay was median 30 days after EVASC, compared to 19 days after conventional treatment ($p=0.004$). Early initiation of EVASC in the first week after primary surgery, resulted in better functional anastomosis rate compared to late initiation (100% vs 55%, $p=0.008$).
Conclusion: Pro-active treatment of AL consisting of EVASC resulted in improved healed and functional anastomosis rates for AL after LAR for rectal cancer, compared to conventional treatment. If EVASC was initiated within the first week after index surgery, a 100% functional anastomosis rate was achievable.

Donor-recipient genetic mismatch is associated with acute cellular rejection after liver transplantation

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Background: Unlike kidney transplantation, in liver transplantation human leukocyte antigen (HLA) matching is not routinely performed as the association with rejection is controversial. However, genetic mismatch of non-HLA haplotypes in kidney graft recipients was recently found to be associated with increased risk of T-cell mediated acute cellular rejection (ACR). Therefore, we hypothesized that donor-recipient non-HLA-, or HLA genetic mismatch was associated with increased ACR incidence after liver transplantation.
Methods: We included donor-recipient pairs of liver transplantations performed between 1993-2016. The primary outcome was biopsy-proven grade 2 or 3 ACR <1-year post-transplantation. Donor-recipient pairs were genotyped using Infinium Global Screening Array. Non-HLA genotypes and classic HLA genotypes were imputed. To assess the burden of donor-recipient genetic incompatibility, we calculated sum scores for HLA eplet mismatch and single nucleotide polymorphism mismatch based on non-HLA functional variants. To determine the effect of non-HLA mismatch on graft loss for those that developed ACR, we divided all rejection cases into low- and high non-HLA mismatch groups, based on the median non-HLA mismatch score of the total study cohort. We then performed Kaplan-Meier analyses with log-Rank testing.
Results: During the first year post-transplantation, 68 of 515 (13%) adult and 15 of 165 (9%) pediatric recipients experienced grade 2 or 3 ACR. Median non-HLA mismatch score for all patients was 3366 (range 1335-4783). The log-normalized non-HLA mismatch score was associated with an increased incidence of 1-year ACR (hazard ratio 1.311; 95%CI 1.033-1.665; p=0.026), whereas the HLA-mismatch score was not. Living-related donor-recipient pairs showed significantly lower HLA- and non-HLA mismatch burden (HLA, 5 vs 8, p<0.001; non-HLA, 1674 vs 3373, p<0.001). None of the recipients who received a graft from a family member developed grade 2 or 3 ACR. For those who developed grade 2 or 3 ACR, a significantly higher incidence of 1-, 2- and 3-year graft loss was observed in the high-, compared to the low non-HLA mismatch group (log-rank: p=0.001, p=0.005 and p=0.033, respectively).
Conclusion: Genetic donor-recipient non-HLA mismatch, but not HLA-mismatch, was associated with clinically relevant ACR after liver transplantation. Furthermore, we found that recipients with a high non-HLA mismatch score, and who developed grade 2 or 3 ACR, had a higher incidence of graft loss. Detection of high-risk immunological burden between donors-recipient pairs may potentially prevent early graft rejection and graft loss in liver transplant recipients.

Early Mobilization after Esophageal Cancer Surgery

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Background: Esophagectomy is a complex procedure associated with high risk of postoperative complications. To improve postoperative outcomes, enhanced recovery after surgery (ERAS) programs are implemented worldwide. A key component of ERAS is early mobilization; in patients following esophagectomy, it is not well studied if early mobilization goals can be achieved. The primary aim of this study was to investigate achievement of early mobilization goals in patients following esophagectomy for cancer in a tertiary referral center.
Methods: In this retrospective study, data of all patients who underwent an esophagectomy for a resectable esophageal or gastro-esophageal junction carcinoma (cT1-4aN0-3M0), between 01-01-2015 and 31-12-2019 were extracted from our institutional prospectively maintained database. The early mobilization protocol entailed an incremental increase in activity each day with the first goal to achieve the distance of 100 meters ambulation on postoperative day 1(POD 1). The primary outcome was the median number of PODs until achieving the mobilization target and the number of patients achieving this target on POD 1. The relation between achieving the mobilization target and preoperative factors (age, sex, ASA-score, BMI, comorbidity COPD, Diabetes mellitus, or cardiovascular) or postoperative outcomes (readmission within 30 days after discharge, length of hospital stay and pulmonary complications) was assessed using multivariable regression analysis.
Results: 384 consecutive patients (307 [79.9%] male, median age 66 [IQR 59-70]) were included. Overall, the median POD of achieving the mobilization target was 2 (IQR 1-3), with 173 (45.1%) patients achieving the target on POD 1. The number of patients who achieved the mobilization target was 121 (27.6%) in 2015, 32 (36.8%) in 2016, 40 (54.1%) in 2017, 39 (47.0%) in 2018 and 41 (64.1%) in 2019. Multivariable analyses showed that male sex was associated with achieving the mobilization target (OR 2.08, 95% CI 1.22-3.54 , *p-value 0.007)*, and that that achieving the mobilization target on POD 1 was not associated with the postoperative outcomes.
Conclusion: These findings suggest that early mobilization up to 100m ambulation on POD 1 is feasible in the majority of patients after esophagectomy, irrespective of age, BMI, ASA-score and comorbidities, and that men have higher odds of achieving the target. Achieving the mobilization target was not associated with the postoperative outcomes. ERAS pathways focusing on esophagectomy care may therefore safely incorporate 100m ambulation on POD 1 as an achievable target to start with after surgery.

Identifying CES-1 positive myeloid cells with mass cytometry as a potential therapeutic target for Crohn's disease

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Background: Myeloid cells are key players in the sustained inflammatory process in Crohn's disease (CD), and are therefore therapeutic targets. Human mononuclear myeloid cells express the cell selective expression of carboxylesterase 1 (CES-1). Esterase-sensitive motif (ESM) technology has been developed to specifically target ESM tagged small molecules on human mononuclear myeloid cells, based on their CES-1 expression, creating a larger therapeutic window with less side effects. This study investigates the presence of CES-1 expressing cells in PBMCs, intestinal biopsies and fistula cells of CD patients, highlighting the potential of ESM-technology in CD. This could benefit CD treatment in non-responsive patients or patients with a fistulizing phenotype.
Methods: Intestinal biopsies were collected from CD patients who underwent endoscopy. PBMCs were collected from CD patients who were receiving Vedolizumab (VDZ) treatment and categorized as responders or non-responders. Criteria for response was based on clinical (HBI ≤4) and biochemical (fecal calprotectine ≤250 µg/g) and/or endoscopic assessment (≥50% reduction in SES-CD score). Fistula tissue was of CD patients was obtained during surgery. CES1-positive cells were phenotyped by mass cytometry with a panel of 32-markers, including the myeloid markers CES-1, CD14, CD16, HLA-DR, CD11c, CD206.
Results: We demonstrated the presence of CD14+HLADR+CD11a+CD44+CD11b+ myeloid cells exclusively expressing CES-1 in intestinal biopsies of CD patients (n=7). CES-1 expression did not differ between inflamed and uninflamed tissue. In PBMCs of VDZ responders (n=5) and non-responders (n=6), we were able to identify different subsets of myeloid cells such as classical (CD14++CD16-), intermediate(CD14+CD16+) and non-classical (CD14-CD16++) monocytes, DCs and CD2+ DC precursors all demonstrating CES-1 expression. Percentage of CES-1 positive cells in inflamed PBMCs (or non-responders) was higher than in uninflamed PBMCs (responders) in all of the above-mentioned subsets. Furthermore, we demonstrated different myeloid populations within fistula cells (n=13) such as pDCs (CD123+CD68+HLA-DR+), DCs (CD11c+CD11b+HLA-DR+ CD44+) , CD141+DCs (CD141+CD49d+HLA-DR+) ,Macrophage (CD14+CD11c+CD11b+HLA-DR+CD44+) and M2 Macrophages (CD14+CD163+CD206+CD11c+CD11b+HLA-DR+CD44+), all expressing CES-1.
Conclusion: We demonstrated specific CES-1 positive myeloid cells within intestinal biopsies, PBMCs of non-responsive patients, and fistulae samples of CD patients. Targeting CES-1+ with ESM-technology could provide new therapeutic targets for CD.

Added value of secretin during magnetic resonance imaging to identify ductal communication in pancreatic cystic neoplasms (image-S): prospective study.

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Background: The key feature of side-branch intraductal papillary mucinous neoplasms (SB-IPMN) is its connection with the pancreatic ductal system. This feature could be helpful to distinguish potentially premalignant SB-IPMN from benign lesions such as pseudocyst and serous cystic neoplasm. However, ductal connection is often not well visible when conventional MRCP imaging techniques, which are used as golden standard to visualize ductal connection, are applied. Therefore this study aimed to investigate if secretin-enhanced magnetic resonance cholangiopancreatography (s-MRCP) improved visualization of ductal connection in PCN.
Methods: We performed a prospective pilot study including consecutive adult patients who underwent follow-up for at least one pancreatic cyst without clear pancreatic duct (PD) connection on conventional MRCP. Patients provided informed consent to undergo additional s-MRCP with 0.2 mg/kg intravenous secretin during routine follow-up. All scans were re-read by two experienced abdominal radiologists. Primary endpoint was clear PD connection (defined as the interpreting radiologist being more than 80% certain of PD connection). Secondary endpoints were artefacts, visibility of the ductal system and adverse events.
Results: We included 21 patients (median age 70 years [IQR 61-75 years], predominantly females [n=15, 67%], median cyst size 18 mm [IQR 13-24 mm]). Both readers reported significantly higher pancreatic ductal visibility after s-MRCP when compared to conventional MRCP (p=0.030 [Reader 1], p = 0.041 [Reader 2]). This did however not result in improved visibility of PD connection after s-MRCP (p=0.166 for reader 1, p=0.807 for reader 2). Overall image quality and amount of artifacts were similar (p=0.090 and p=0.071 for reader 1, and p=0.084 and p=0.157 for reader 2, respectively). One patient experienced an episode of diarrhea after secretin administration.
Conclusion: The results of this pilot study showed that secretin-enhanced MRCP did increase pancreatic ductal visibility although it did not result in an increased visibility of PD connection in patients with PCN. Follow-up research should investigate if secretin-enhanced ductal visibility is of added value in more extensive MRI sequences to detect PD connection with PCN.

Proteomic analyses do not reveal subclinical inflammation in fatigued patients with quiescent inflammatory bowel disease

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Background: Fatigue is a common and clinically challenging symptom in patients with inflammatory bowel diseases (IBD). While fatigue occurs most often in patients with active disease, up to 50% of patients with quiescent disease still report significant fatigue of unknown etiology. Here, we aimed to investigate whether fatigue in patients with quiescent IBD is reflected by circulating inflammatory proteins, that in turn might reflect ongoing subclinical inflammation.
Methods: Ninety-two (92) different inflammation-related proteins were measured in plasma of 350 patients with quiescent IBD (188 Crohn's disease [CD]; 162 ulcerative colitis [UC]). Quiescent IBD was defined as clinical (Harvey-Bradshaw Index [HBI]<5 or Simple Clinical Colitis Activity Index [SCCAI]<2.5) and biochemical remission (C-reactive protein [CRP] <5 mg/L) at time of sampling. Fatigue severity was assessed on a visual analogue scale (VAS).
Results: None of the analysed plasma proteins were differentially abundant between mildly (1st quartile, Q1) or severely (4th quartile, Q4) fatigued patients under a false discovery rate of 10%. Considering nominal significance (P<0.05), however, leukemia inhibitory factor receptor (LIF-R) concentrations were inversely associated with severe fatigue, also after adjustment for confounding factors (P <0.05). Although solely LIF-R showed weak ability to discriminate between mild (Q1) and severe (Q4) fatigue (area under the curve [AUC]=0.61, 95%CI:0.53-0.69, P<0.05), a combined set of the top seven (7) fatigue-associated proteins (LIF-R, vascular endothelial growth factor-A [VEGF-A], glial-derived neurotrophic factor [GDNF], interleukin-20 receptor subunit alpha [IL-20RA], Delta and Notch-like epidermal growth factor-related receptor [DNER], T-cell surface glycoprotein CD5 [CD5], and extracellular newly identified receptor for advanced glycation end-products binding protein [EN-RAGE], also known as protein S100-A12, all P<0.10) was observed to have reasonable discriminative performance (AUC=0.82 [95%CI:0.74-0.91], P<0.01).
Conclusion: Fatigue in patients with IBD is not clearly reflected by distinct circulating inflammatory protein signatures, which suggests that subclinical immune activation as defined by the studied panel of inflammatory proteins could not be detected. Reduced shedding of the LIF-R protein could be related to fatigue in IBD through modification of the oncostatin-M (OSM) signaling pathway, or through induction of pro-inflammatory phenotypes of T-cells, macrophages, or neural cells. Future studies are warranted to investigate other proteomic or metabolic markers that may accurately reflect fatigue in quiescent IBD, which might represent alternative pathophysiological pathways.

Providing the pathologist with clinical information improves the reading and interpretation of EUS-guided tissue acquisition of solid pancreatic lesions.

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Background: EUS-guided tissue acquisition is the most sensitive method to collect tissue samples of solid pancreatic lesions. The availability of clinical information might aid the pathologist's ability to establish a diagnosis. The aim of this study was to investigate the diagnostic accuracy and agreement of cytotechnicians and pathologists in the evaluation of EUS-FNA samples of solid pancreatic lesions and the impact of clinical information on agreement and diagnostic accuracy.
Methods: Forty EUS-FNA smears were collected retrospectively and reviewed by eight cytotechnicians and sixteen pathologists. After a month, all participants reviewed the smears again, but in a different order. Clinical information was available in half of the cases in the first round, and for the other half of the cases in the second round. The participants were blinded to the purpose of this study. The diagnostic accuracy is described as the proportion of smears that is correct, compared to the final follow-up diagnosis. Inter-observer agreements are calculated using unweighted Fleiss' kappa statistics.
Results: The diagnostic accuracy based on smears only was significantly higher with clinical information compared to without clinical information (45% versus 38%, p-value 0.002). The overall agreement among participants without clinical information was fair (κ 0.225). With clinical information the overall agreement was significantly higher compared to the agreement without clinical information (κ 0.271, p-value of the difference = 0.018).
Conclusion: Adding clinical information to the pathology requisition form improves the diagnostic reproducibility and diagnostic accuracy of EUS-FNA smears of solid pancreatic lesions.

Identification and functional analysis of stromal subsets in experimental IBD mouse models

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Background: Single cell RNA sequencing data from the inflamed colon of inflammatory bowel disease (IBD) patients revealed the presence of different stromal cell/fibroblast subsets and showed their importance in IBD pathology. Up to now, it is unknown if and how the stroma cells affect disease progression. In this study we compared the stromal cell subsets in three IBD mouse models and explored the interaction between these stromal subsets and epithelial cells.
Methods: Stromal cell subset markers, including CD55, C-X-C motif chemokine 12 (CXCL12), podoplanin (PDPN), CD90 and CD73, were analyzed in the inflamed murine colon by flow cytometry in interleukin (IL)-10 knockout (KO) mice, dextran sulfate sodium(DSS)-induced colitis and the T cell transfer model. In order to explore the changes in stromal subsets upon colitis induction *in vitro*, short hairpin RNAs were used to silence target gene expression of these cellular markers in murine fibroblasts. Fibroblast proliferation and migration was studied in addition to the effects on immune cell trafficking and tissue regeneration.
Results: In all three colitis models, an increase in the total amount of stromal cells was observed. The percentages of $PDPN^+$ and $CD73^+$ stromal cells significantly increased during colitis in the IL-10 KO mice, while the percentage of $CD55^+$, $CD90^+$ and $CXCL12^+$ stromal cells decreased. For the T cell transfer model, the abundance of $CD73^+$, $CD90^+$ and $CD55^+$ stromal cells was enriched, while the percentage of $CXCL12^+$ stromal cells was reduced. Interestingly, in contrast to the two other, in the DSS-mice the percentage of $CXCL12^+$ stromal cells was significantly increased. *In vitro* experiments showed the importance of CD55 and CXCL12 for fibroblast proliferation and CD55 for their migration. Furthermore, the fibroblast supernatant obtained after the knockdown of CXCL12 decreased epithelial cell wound healing. On the contrary, knock-down of CD90 in the fibroblasts improved epithelial migration. Current experiments explore the immune regulatory properties of the fibroblast subsets.
Conclusion: The composition of stromal cell subsets is significantly changed in experimental colitis and differs between three established colitis mouse models. Therefore they may possibly reflect different human IBD subtypes observed in the clinic. Finally the defined subsets influence fibroblast behavior and epithelial regeneration.

Prophylactic medication for the prevention of endoscopic recurrence in Crohn's disease: a prospective study based on clinical risk stratification

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Background: To prevent recurrence after ileocolonic resection (ICR) in Crohn's disease (CD), postoperative prophylaxis based on risk stratification is recommended in international guidelines. This study aimed to evaluate postoperative recurrence of CD after implementation of a clinical management algorithm and determine the predictive value of clinical and histological risk factors (RF).
Methods: In this multicenter, prospective cohort study, CD patients (≥16 years) scheduled for ICR were included. The algorithm advised no postoperative medication for low-risk patients, and treatment with prophylaxis (immunosuppressant/biological) for high-risk patients (≥1 RF: active smoking, penetrating disease, prior ICR). Clinical and histologic RF (active inflammation, granulomas, plexitis in resection margins) for endoscopic recurrence (Rutgeerts' score ≥i2b at 6 months) were assessed using logistic regression and ROC curves based on predicted probabilities.
Results: 213 CD patients after ICR were included (age 34.5 years; 65% women) (93[44%] low-risk; 120[56%] high-risk [45[38%] smoking; 51[43%] penetrating disease; 51[43%] prior ICR]). Adherence to the algorithm was 82% in low-risk (no prophylaxis) and 51% in high-risk patients (prophylaxis). Endoscopic recurrence was higher in patients treated without prophylaxis than with prophylaxis in both low (45% vs 16%, p=0.012) and high-risk (78% vs 55%, p=0.019). Clinical risk stratification corresponded with an area under the curve (AUC) of 0.70 (95%CI 0.61-0.79). Clinical RF combined with histological RF increased the AUC to 0.73 (95%CI 0.64-0.81).
Conclusion: Adherence to this management algorithm is 65%. Prophylactic medication after ICR prevents endoscopic recurrence in approximately 1/4 of both low and high-risk patients. Further refinement of risk stratification, which may include histologic assessment, is needed.

Peroral endoscopic myotomy versus pneumatic dilation in treatment-naive patients with achalasia: 5-year results of a randomized clinical trial

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Background: Two year follow-up data revealed that Per-Oral Endoscopic Myotomy (POEM) showed a significantly higher efficacy compared to pneumatic dilatation (PD) as initial treatment for therapy-naive achalasia. However, data comparing long-term efficacy and safety is lacking.
Methods: 133 patients with untreated achalasia were randomized to either POEM (67) or PD (66) using a 30-35 mm dilatation protocol. The primary outcome was therapeutic success (presence of Eckardt score ≤3 and the absence of severe complications or need for retreatment). Follow-up was planned at 3 months, 1, 2 and 5 years after treatment. Results up to two years follow up have been published before, this report focusses on the long-term outcomes.
Results: Baseline characteristics were similar between groups regarding symptoms, age, integrated relaxation pressure (IRP), barium column height and achalasia subtype.
Five-year follow-up data was available for 117/133 patients. Three patients randomized to receive POEM were never treated, 5 patients were lost to follow-up before the primary endpoint was reached including one patient that died of melanoma. In 8 patients the final 5-year visit still has to take place. 45/57 (78.9%) patients in the POEM group and 24/60 (40%) in the PD group were still in clinical remission 5 years after initial treatment ($p<0.001$).
Patients in both groups that were still in clinical remission 5 years after treatment did not significantly differ in median IRP (11.3 (8.7 to 15.3) mmHg vs 14.0 (11.3 to 21.3) mmHg, NS), barium column height at 5 min. (2.9 (0-4.6) cm vs 0 (0-4.1) cm, NS) or Eckardt score (2 (1-3) vs 1 (1-2), NS) after 5 years.
Five-year follow-up endoscopy showed no significant difference in the presence of reflux esophagitis in patients treated with POEM (27.8% grade A/B, 5.6% grade C/D) and in those treated with PD (12.5% grade A/B, 0% grade C/D) ($p=0.422$). However, PPIs were continued and PPI use was significantly higher in the POEM group (51.1%) compared to the PD group (13.0%) ($p=0.002$). Clinically relevant reflux symptoms, measured with GERDQ score ≥ 8, were significantly more prevalent after POEM compared to PD (48.9% vs 16.7%, $p=0.009$).
Two treatment related serious adverse events occurred, both in the PD group. One perforation occurred requiring endoscopic closure. One patient presented with severe chest pain and was observed for one night after perforation was ruled out. No severe delayed adverse events occurred during follow-up.
Conclusion: POEM results in a significantly higher long-term therapeutic success compared to PD in treatment-naive achalasia patients. Incidence of reflux esophagitis, reflux symptoms and PPI use remain high 5 years after POEM.

Poor adherence to medical and dietary treatments in adult patients with eosinophilic esophagitis

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Background: Eosinophilic esophagitis (EoE) requires chronic medical or dietary treatment to prevent recurrent inflammation and subsequent development of remodeling and subsequent complications in the long-term. Treatment non-adherence is a major problem in many chronic diseases reducing treatment efficacy and often leading to long term adverse outcomes, but no data on treatment adherence is available for EoE. Therefore, the objective of this study was to investigate the prevalence of poor adherence to prescribed treatment in a large cohort of adult EoE patients and to identify associated factors.
Methods: In this cross-sectional study adult EoE patients known at our outpatient clinic who were prescribed dietary or medical maintenance therapy were included. Patients were asked to complete questionnaires concerning treatment adherence (MARS), beliefs about treatment (BMQ), beliefs about disease (IPQ) and current symptoms (Straumann Dysphagia Index; SDI). Retrospective chart review was performed to collect socio-demographic and medical data.
Results: A total of 177 EoE patients (71% males) were included with a median age of 43 years. The prevalence of poor adherence to prescribe treatment (MARS </ 21 or DARS </21) in this cohort was 41.8%. Medically treated patient were less adherent than dietary treated patients (35.6% vs. 41.8%, p=0.320). Using multivariate logistic regression analyses we identified the following independent factors associated with treatment non-adherence in the entire group: age <40 years (OR 2.571, 95% CI 1.195-5.532, p=0.016), longer disease duration (OR 1.130, 95%CI 1.014-1.258, p=0.027), higher SDI (OR 1.167, 95%CI 1.012-1.345, p=0.034) and low necessity beliefs (OR 4.423, 95%CI 2.169-9.016, p=0.000). For medical treated patients alone, age <40 years (OR 2.438, 95%CI 1.018-5.838, p=0.045), higher SDI (OR 1.212, 95%CI 1.033-1.422, p=0.018) and low necessity beliefs (OR 4.749, 95%CI 2.101-10.736, p=0.000) were associated with poor treatment adherence. No independent risk factors were identified for patients on dietary treatment.
Conclusion: It was demonstrated that adherence to maintenance treatment is poor in many adult EoE patients. Treatment adherence was lower in medically treated patients than in dietary treated patients. Clinicians should pay more attention to treatment adherence, particularly in younger patients. The necessity of treatment should be actively discussed and efforts should be done to take doubts away, as this may improve treatment adherence and subsequently may improve treatment effects and long term outcomes.

Discrete choice experiment reveals strong preference for dietary treatment among patients with irritable bowel syndrome

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Background: Irritable Bowel Syndrome (IBS) is a highly prevalent, chronic disorder of the Gut-brain interaction which significantly affects quality of life. Several treatments, with comparable clinical efficacy, are available. Patient preferences can therefore be an important determinant of an effective management strategy. Treatment preferences of patients regarding decision-making remain unclear. We aimed to examine these preferences and estimate trade-offs between different attributes.
Methods: 427 patients from the Maastricht IBS cohort were invited to participate. A labeled discrete choice experiment (DCE) survey, containing 9 scenarios with each three alternatives (medication, diet, psychotherapy), was developed in order to estimate preferences. The treatment scenarios were based on six attributes: effectiveness, time to response, time util recurrence, side effects, treatment burden and frequency of appointments. The preference weights and relative importance were analyzed using a mixed logit model.
Results: A total of 185 (43.33%) of 427 potential respondents completed the questionnaire (mean age 49.51 years, 69.2% female). The most preferred treatment was dietary intervention (48.1%), subsequently pharmacotherapy (29.2%) and psychotherapy (22.7%). IBS patients preferred a higher effectiveness, shorter time interval to response, longer time interval until recurrence, no severe side effects and frequent appointments when attending psychotherapy. Younger patients (≤50 years) preferred dietary interventions and a long period until recurrence, whereas older patients (>50 years) were more inclined to choose pharmacotherapy and the period until recurrence was not important.
Conclusion: Dietary interventions were the most preferred IBS therapy. Identifying patients' treatment preferences during shared decision-making, will provide more optimal management strategies and could be the best approach to diminish disease burden.

Dietary advanced glycation endproducts and intestinal inflammation in inflammatory bowel disease and irritable bowel syndrome patients

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Background: The Western diet is associated with both inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS) and patients often perceive specific food items as trigger for flares or symptoms. In general, a Western diet is rich in processed food and comprises high levels of advanced glycation endproducts (AGEs). This complex group of compounds can have e.g. oxidative and inflammatory properties. We aimed to investigate the intake of dietary AGEs in IBD and IBS patients, and the association with intestinal inflammation.
Methods: A cross-sectional study was performed in 238 IBD patients, 261 IBS patients and 195 healthy controls (HC). Habitual dietary intake over the previous month was assessed using validated food frequency questionnaires. These data were combined with a database of dietary AGEs in food products measured by ultra performance liquid chromatography-tandem mass spectrometry. We calculated the daily intake of three important dietary AGEs: Nε-carboxymethyl-lysine (CML), Nε-carboxyethyl-lysine (CEL) and methylglyoxal-derived hydroimidazolone-1 (MG-H1). The associations between these dietary AGEs and faecal calprotectin, as marker of intestinal inflammation, were analysed using multivariable linear regression.
Results: The absolute dietary AGEs intake did not differ between IBD and HC, but was significantly lower in IBS (CML 3.53±1.22 vs. 3.05±1.12 vs. 3.43±1.22mg/day, IBD vs. IBS $p<0.001$, IBS vs. HC $p=0.002$; CEL 2.92±1.03 vs. 2.57±0.90 vs. 2.82±1.05mg/day, IBD vs. IBS $p<0.001$, IBS vs. HC $p=0.024$; MG-H1 22.82±7.99 vs. 20.10±7.34 vs. 23.24±7.91mg/day, IBD vs. IBS $p<0.001$, IBS vs. HC $p<0.001$). After adjustment for total energy intake, the dietary AGEs intake was no longer significantly different between IBS and HC. Faecal calprotectin levels were not significantly associated with absolute intake or energy-adjusted intake of dietary AGEs in either of the subgroups.
Conclusion: The intake of dietary AGEs was not significantly associated with intestinal inflammation in IBD and IBS patients. However, further insight is needed on other putative biological consequences of dietary AGEs, especially given the microbiome perturbations in both patient groups.

Placebo response in pharmacological trials in patients with functional dyspepsia – a systematic review and meta-analysis

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Background: Pharmacological trials in functional dyspepsia (FD) are associated with high placebo response rates. We aimed to identify the magnitude and the contributing factors to the placebo response.
Methods: We conducted a systematic review and meta-analysis including randomized controlled trials (RCTs) with a dichotomous outcome in adult patients with FD that compared an active pharmacotherapeutic treatment with a placebo treatment. Our main outcome was identification of the magnitude of the pooled placebo response rate for the following endpoints: symptom responder, adequate relief responder, and combined endpoint responder (ie, the primary endpoint of each specific trial regarding treatment response). Several putative moderators (ie, patient, disease, and trial characteristics) were examined.
Results: Of the 9829 publications identified, 25 RCTs were included in our analysis. The pooled placebo response rate was 33.4% (95% CI 26.9-40.6) using the symptom responder definition, 37.6% (32.1-43.5) using the adequate relief responder definition, and 35.6% (31.5-40.0) using the combined endpoint responder definition. A lower overall baseline symptom score was significantly associated with a higher placebo response rate. No other moderators were found to significantly impact the placebo response rate. Due to lack of data, no analyses could be performed according to individual FD subtypes or symptoms.
Conclusion: The pooled placebo response rate in pharmacological trials in FD is 33-38% depending on the responder definition. Future trials should consider applying an entry criterion based on minimal level of symptom severity in order to decrease the placebo response. We also suggest separate reporting of the core FD symptoms pending more concrete harmonization efforts in FD trials.

Antibiotic resistance of Helicobacter pylori in primary care

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Background: *Helicobacter pylori (H. pylori)* is a bacterium that is causally associated with chronic gastritis, peptic ulcer and gastric cancer. Reported prevalence varies from 19-35%. The worldwide efficacy of *H. pylori* eradication treatment has decreased due to increased antibiotic resistance. This study determines eradication success of *H. pylori* in primary care in the Netherlands, as a proxy measure for antibiotic resistance development.
Methods: This observational cohort study used real-world routine health care data from Electronic Medical Records from general practices in the region Leiden/The Hague affiliated with the Dutch ELAN (Extramural LUMC Academic Network) primary care network. Patients with an ICPC-code for gastric symptoms or an ATC code for acid inhibition in the period 2010-2020 were selected. Patients with *H. Pylori* infection were detected based on having received eradication treatment. We investigated if a second eradication treatment was prescribed within 12 months, indicating antibiotic resistance. The types of antibiotics prescribed as first eradication treatment were evaluated for resistance rates. If no second treatment was prescribed within 12 months, patients were suspected to have been successfully eradicated.
Results: We identified 138,455 patients with gastric symptoms or acid inhibition from 80 general practices. Mean age was 57 years (SD 18.2) of whom 43% were male. A total of 5,224 (4%) patients received a first eradication treatment and were considered *H. pylori* positive. The antibiotic treatment combinations amoxicillin-clarithromycin, amoxicillin-metronidazole and clarithromycin-metronidazole were used in 4,847 (93%), 154 (3%) and 111 (2%) of first eradication treatments, respectively. A second eradication treatment was prescribed within one year in 416 (8%) patients. Thereof, 380 (8%) patients received amoxicillin-clarithromycin, 16 (10%) amoxicillin-metronidazole and 11 (10%) clarithromycin-metronidazole as first eradication treatment and were considered antibiotic resistant.
Conclusion: Approximately one-tenth of *H. pylori* infections in primary care are not successfully treated after a first treatment with clarithromycin and/or metronidazole and require a second eradication treatment.

Prediction models for celiac disease development in children from high-risk families: data from long term follow up of the PreventCD cohort

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Background: Screening for celiac disease (CD) is recommended in children with first-degree relatives (FDR) with CD. However, the frequency of screening and at what age remain unknown. Aims: to detect variables influencing the risk of CD-development and develop and validate clinical prediction models to provide individualized screening advice.
Methods: Analysis of prospective data from the ten years follow-up of the PreventCD-birth cohort involving 944 genetically predisposed children with CD-FDR. Variables significantly influencing the CD-risk were combined to determine a risk score. Landmark analyses were performed at different ages. Prediction models were created by multivariable Cox proportional hazards regression analyses, backward elimination and Harrell's c-index for discrimination. Validation was done using data from the independent NeoCel cohort.
Results: In March 2019, the median follow-up was 8.3 years (22 days-12.0 years); 135/944 children had developed CD (mean age 4.3years (1.1-11.4). CD developed significantly more often in girls (p=0.005) and in HLA-DQ2 homozygous individuals (8-year cumulative incidence 35.4% versus maximum 18.2% [P<0.001]). The effect of homozygosity DR3-DQ2/DR7-DQ2 on developing CD was only present in girls (interaction p=0.04). The prediction models showed good fitting in the validation cohort (Cox regression 0.81(0.54)). To calculate a personalized risk of CD-development and provide screening advice, we designed the Prediction application https://hputter.shinyapps.io/preventcd/.
Conclusion: Children with CD-FDR develop CD early in life, and their risk depends on gender, age and HLA-DQ: all factors which are important for a sound screening advice. These children should be screened early in life, including HLA-DQ2/8 typing, and if genetically predisposed to CD, should get a further personalized screening advice using our Prediction app.
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Early diagnosis of coeliac disease by case-finding at the preventive youth health care centres in The Netherlands (Glutenscreen) preliminary results.

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Background: Coeliac disease (CD) occurs in 1% of the population, but is severely underdiagnosed. Secondary prevention by early diagnosis may be achieved by case-finding. Aim: to prospectively assess whether case-finding at the Preventive Youth Health Care Centres (YHCCs) in the Netherlands is a feasible and effective strategy for early CD-diagnosis.
Methods: We analyzed data from the case-finding study GLUTENSCREEN from its start at 4th February 2019 till 17th October 2021 (with interruption of 5 months due to COVID19). Parents of all symptomatic children aged 1-4 years attending the YHCC in the Kennemerland-region for a regular visit, were asked if their child has ≥1 CD-related symptoms. If so, a point-of-care-test (POCT) to assess CD-specific antibodies against tissue transglutaminase (TGA), was performed onsite the YHCCs. If the POCT was positive, the child was referred to our hospital for definitive diagnosis according to the ESPGHAN guideline.
Results: 36.7% (5319/14459) of the children had ≥1 CD-related symptoms. Parents of 2768 (52.0%) children gave informed consent for a POCT (48% female; median age 2.8years). In 54 children the POCT was positive: CD was confirmed in 49 children (1.8% of the tested children) and ruled out in 5 children. Of them two children had negative HLA-DQ2/8 and TGA (ELISA-test) and in 3 children with TGA <10xULN small bowel biopsies showed Marsh 0-1 lesions.
Conclusion: Case-finding for CD using a POCT is effective and feasible and it detects a high CD prevalence of 1.8%. Before implementation of the case-finding strategy cost-effectiveness and acceptability analyses are needed.
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In-depth characterization of the serum antibody epitope repertoire in inflammatory bowel disease using high-throughput phage-displayed immunoprecipitation sequencing

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Background: Patients with IBD show distinct antibody responses, particularly against microbiota. However, a comprehensive overview of the antibody epitope repertoire in IBD is lacking. Here, we characterized serum antibody responses in patients with IBD and population controls using a high-throughput phage-displayed immunoprecipitation sequencing (PhIP-seq) workflow and associated these to disease phenotypes and the faecal microbiome.
Methods: PhIP-seq was leveraged to characterize antibody responses against 344,000 rationally selected peptide antigens in 497 patients with IBD which were compared to 1,326 individuals from a population-based cohort. Antibody profiles were linked to 23 IBD-specific clinical features such as disease location and surgical history and to faecal microbiota composition.
Results: Patients with IBD demonstrate distinct antibody epitope repertoires compared with individuals from the general population, with 373 differentially abundant antibody-bound peptides (202 overrepresented, 171 underrepresented) of which 17% shared by both types of IBD, 55% unique to CD and 28% unique to UC. Differentially abundant antibody-bound peptides belonged to bacterial flagellins (69), virulence factors (102), other antigens of both commensal and pathogenic bacteria (90) as well as viruses (67) and food proteins (24). In particular, antibody responses against bacterial flagellins, many of which belong to *Lachnospiraceae* bacteria (e.g. *Roseburia* spp.), but also *Eubacterium* spp. and pathogens (e.g. *Legionella*, *Clostridium, Burkholderia*) dominated in patients with CD, and were associated with ileal disease involvement and more complicated disease behaviour (e.g. fibrostenotic disease, surgical history) as well as anti-*Saccharomyces cerevisiae* antibody positivity. Furthermore, many other antigens were newly identified, e.g. decreased responses to *E. coli* virulence factors and genome polyproteins of enteroviruses, and increased responses to food antigens (wheat, barley) and autoantigens (particularly collagen type I and VI). Antibody epitope repertoires were able to accurately discriminate CD from population controls (area under the curve [AUC]=0.89, test set), and similar discrimination was achieved when using only ten antibodies (AUC=0.87, test set).
Conclusion: This study demonstrates the size, diversity and complexity of systemic antibody epitope repertoires in patients with IBD compared to controls, showing that distinct clinical phenotypes of IBD are characterized by unique antibody signatures. PhIP-seq is a powerful tool for identifying systemic immune-based biomarkers and exposing novel immunological targets in immune-mediated inflammatory diseases like IBD.

The human peritoneal immune system identified using single-cell RNA sequencing and deep immunophenotyping

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Background: The peritoneal immune system in mice is complex and unique and has several functions in homeostasis and disease. Although many human diseases have involvement of the peritoneal cavity, the composition and function of the human peritoneal immune system remains largely unknown.
The aim of this study was to delineate the cellular and phenotypical characteristics of the human peritoneal immune system.
Methods: A total of 19 patients undergoing scheduled abdominal surgery, which allowed for access to the peritoneal cavity, were included prospectively. Patients underwent surgery because of a primary gastrointestinal tumor (colorectal or gastric) without any signs of peritoneal disease such as cancer metastases or inflammation. Paired peritoneal fluid (PF) and blood samples were obtained, and immune cells were isolated from both PF and blood and analyzed using single cell RNA-sequencing and CyTOF mass cytometry.
Results: We show that the human peritoneal cavity harbors unique immune populations which cluster completely different from blood immune cells. Compared to blood, the peritoneal immune system (PIS) contains large amounts of macrophages with a M2-like anti-inflammatory phenotype. As macrophages are typically found in tissues and are almost absent in the circulation, this is suggestive that the peritoneal cavity has tissue-like properties. Apart from macrophages, we observed mostly T cells and very little B cells. Peritoneal T cells consisted predominantly of CD8 effector memory and tissue-resident memory subtypes. Additionally, compared to blood, we find an increase in plasmacytoid dendritic cells, conventional $CD141^+$ dendritic cells, and $CD16^-$ natural killer cells.
Conclusion: With this study, we provide the first transcriptional and in-depth phenotypical atlas of the human peritoneal cavity to define its immunological landscape. The PIS clusters are completely different from immune subsets found in the circulation, and these results demonstrate the PIS must be considered as a unique immune compartment. Its role in human peritoneal diseases is subject to future research.

Selective upregulation of Cathepsin H in cancer-associated fibroblasts in early-stage colorectal cancer

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Background: Cathepsin H (CTSH), a lysosomal cysteine proteinase, is overexpressed in several types of human malignancies, including colorectal cancer (CRC). However, the cellular expression patterns of CTSH and its role in CRC progression remain largely unknown. Based on mRNA sequencing data obtained from cancer-associated fibroblasts (CAFs) in early CRCs, we analyzed CTSH expression in early CRCs and investigated the effects of CTSH on CRC progression.
Methods: Immunohistochemistry for CTSH was performed on tissue sections of 22 endoscopically resected CRCs. Quantitative polymerase chain reaction, western blot and CTSH enzyme activity assays were used to study expression levels of CTSH. MTS assays, scratch assays and transwell/3D matrix invasion assays were performed to study proliferation, migration and invasion, respectively. The role of CTSH in CRC progression was evaluated via gene silencing and overexpression in human fibroblast cell lines and primary colorectal fibroblasts.
Results: In early CRCs, CTSH expression was gradually increased from healthy regions to cancer. High expression levels were found in the stroma, and particularly in CAFs, at the invasive front of the tumor, suggestive of a functional relationship between CTSH-expressing CAFs and CRC progression. RNA and protein expression of CTSH were confirmed to be increased in CAFs isolated from early CRCs, as compared to matched normal fibroblasts (n=13 pairs). Upregulation of CTSH appeared to be specific for early CRC CAFs, as differential expression was not observed in analyses of CAFs isolated from more advanced stage CRCs (n=27 pairs) and fibroblasts from adenomatous polyps (n=19 pairs). However, direct contact co-culture and conditioned medium experiments showed that proliferation, migration and invasion of multiple CRC cell lines were not significantly affected by fibroblasts with CTSH knockdown or overexpression. Given the consistent, stage-specific upregulation of CTSH in early CRC CAFs, the local interplay in situ between CAFs and tumor cells might be instrumental for early stages of CRC.
Conclusion: CAFs in early CRCs exhibit stage-specific upregulation of CTSH, with possible stage-specific effects on early tumor progression.

Cancer-associated fibroblasts in T1 colorectal cancer promote matrix remodeling and tumor organoid expansion

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Background: Improving clinical management of early-invasive colorectal cancers (T1CRCs) requires a better understanding of their underlying biology. Accumulating evidence shows that cancer-associated fibroblasts (CAFs) are important determinants of cancer biology in advanced stage colorectal cancer (CRC), but for T1CRCs this is currently unknown. Therefore, we characterized CAFs in T1CRCs (T1CAFs) and investigated their role in CRC progression.
Methods: Cultured primary T1CAFs and patient-matched normal fibroblasts (NFs) were isolated from endoscopic biopsies of histologically confirmed T1CRCs. Gene expression patterns of 10 matched NF-T1CAF pairs were evaluated using mRNA sequencing, and differentially expressed genes (DEGs) between T1CAFs and NFs were validated on RNA and protein level. Proliferation, scratch and transwell invasion assays were performed to study paracrine interactions between T1CAFs and CRC cells in vitro. Extracellular matrix (ECM) remodeling assays with T1CAFs and co-culture experiments with primary T1CRC organoids were used to study T1CRC biology.
Results: T1CAFs displayed distinct gene expression patterns as compared to matched NFs, with 404 DEGs and significant enrichment for ECM-related ontology terms. DEGs were validated in an independent cohort of T1CAFs and matched NFs, and expression was confirmed on primary T1CRC sections. Multiple DEGs (*Ctsh, Pi16, Scube3, Sema3c*) showed T1 stage-specific expression patterns which were not recapitulated in analyses of adenoma fibroblasts and advanced CRC CAFs. We consistently found that T1CAFs promoted ECM remodeling in a protease-dependent manner, whereas matched NFs did not in the majority of cases. Moreover, co-culture experiments revealed that expansion of T1CRC organoid structures into Matrigel was induced by both organoid-matched and unmatched T1CAFs, but not by NFs.
Conclusion: T1CAFs show unique stage-specific gene expression patterns and can affect cancer progression via matrix remodeling and direct interaction with T1CRC cells.