

In de najaarsbijeenkomst 2010 van NESPEN is de abstractprijs gewonnen door mw. Dr. Michelle Versleijen uit het UMC St Radboud te Nijmegen. Haar abstract 'Fish-oil-based lipid infusion results in significant n-3 fatty acid incorporation in plasma phospholipids and leukocyte cell membranes in healthy volunteers' is geschreven in samenwerking met H.M. Roelofs, C. Rombouts, P. Noakes, P.C. Calder, E.R. Simonetti, P.W. Hermans en G.J. Wanten.

Michelle Versleijen was helaas niet in staat zelf de prijs in ontvangst te nemen. Haar presentatie werd verzorgd door Dr. Geert Wanten die ook de prijs in ontvangst nam en er zorg voor zou dragen deze aan de kersverse moeder (zie foto) te overhandigen.



The high content of n-6 polyunsaturated fatty acids (PUFAs) in parenteral lipid emulsions derived from soybean oil (SO), which are world wide the most commonly used emulsions, might be unfavorable since n-6 PUFAs may promote the overproduction of pro-inflammatory cytokines and eicosanoids. Fish oil (FO) is rich in the less pro-inflammatory n-3 PUFAs such as eicosapentanoic acid (EPA), docosapentanoic acid (DPA) and docosahexanoic acid (DHA). Higher plasma and cell membrane n-3 PUFA contents might, therefore, be beneficial especially in patients with an already imbalanced immune response. In the present study, plasma phospholipids and PBMC cell membrane fatty acid composition after intravenous infusion of a FO-based and a SO-based lipid emulsion in healthy volunteers was assessed. Lipid free control (saline), SO- and FO- based lipid emulsions were administered for 1 hour on three consecutive days (0.2 g/Kg BW/hr) with a wash-out interval of two weeks to 8

healthy volunteers in a randomized cross-over study design. Relative plasma phospholipid and PBMC cell membrane fatty acid contents were assessed prior to the first infusion (T=0, baseline), 1 day (T=4) and 8 days (T=11) after the third infusion. Data are expressed as ratio T=4/T=0 and T=11/T=0, which indicate early and late treatment effects respectively. The early effect of FO infusion consisted of significantly higher EPA (4.48), DPA (1.27) and DHA (1.70) plasma levels (ratio T=4/T=0) when compared to lipid free control (0.94, 1.04 and 1.12, respectively) and SO (0.77, 0.96 and 1.06, respectively). Levels of linoleic acid and dihomo-gamma-linolenic acid (DGLA) were significantly lower after FO infusion (0.80 and 0.79) than after lipid free control (0.98 and 1.04) and SO (1.01 and 0.95). At T=11, most levels had normalized. Also, relative EPA and DHA levels in PBMC cell membranes tended to be higher early after FO infusion (2.91 and 1.38, expressed as ratio T=4/T=0) when compared to lipid free control (1.13 and 0.98) and SO (0.94 and 0.93). No adverse effects were observed. Conclusions: Short term infusion of a FO-based lipid emulsion to healthy volunteers is safe and increases the relative n-3 PUFA content of plasma phospholipids and PBMC cell membranes. The current FO infusion protocol can, therefore, be used to assess the beneficial effect of FO-based parenteral lipid emulsions in patients with an imbalanced (pro-) inflammatory state.