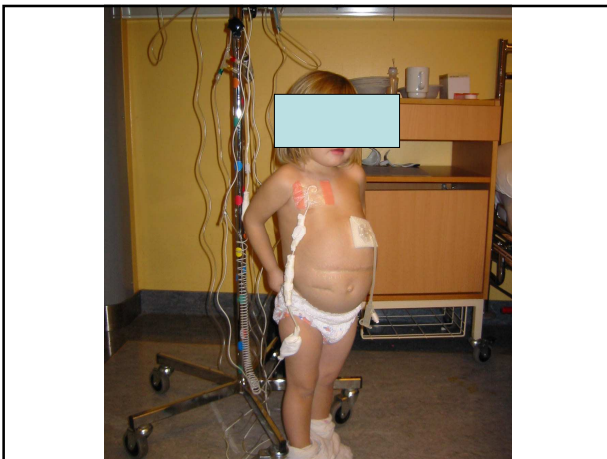


Farvel til PNALD – barn.

BS BENTSEN
Seksjon Barnegastroenterologi, -
hepatologi og - klinisk ernæring,
OUS.



PN complications.

- ESPEN/ESPGHAN Guidelines.
- JPGN Oct 2005.
 - Complications to CVC.
 - Infections.
 - Compatibility.
 - Drug interactions.
 - Refeeding Syndrome.
 - Metabolic bone disease.
 - Hepatobiliary complications.
 - Growth retardation

Hepatobiliary complications.

- Patient related and PN related risk factor reduction. (Infection, infection, infection)
- Provide maximum tolerated EN.
- Commence cyclical PN as soon as possible.
- Consider treatment of bacterial overgrowth.
- Reduce or stop iv lipids.
- Consider change to omega-3-based lipid emulsion.
 - (story to follow)
- Ursodeoxycholic acid.

- Early referral to liver/intestine tx centre.

Fish oil and cholestasis.

- Safety and efficacy of a fish oil-based fat emulsion in the treatment of parenteral nutrition-associated liver disease.
 - Puder et al, Pediatrics 2005.
 - Xth International SBTxS 2007.
- 18 patients with normal bilirubin after 9 weeks of 1g/kg Omegaven.

Breaking news.

Reversal of Parenteral Nutrition- Associated Liver Disease in Two Infants With Short Bowel Syndrome Using Parenteral Fish Oil: Implication for Future Management

KM Gura, CP Duggan, SB Collier, RW Jennings, J Folkman, BR Bistrain & M Puder

Pediatrics 2006; 118: e 197-e201

Bilirubin in Omegaven vs. Intralipid cohort

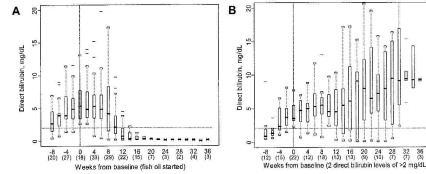
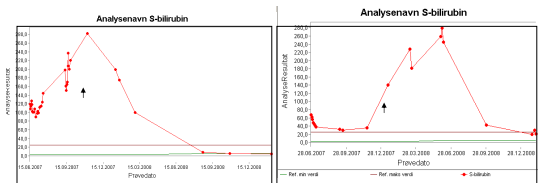


FIGURE 1. Direct bilirubin levels over four time points from baseline for the fish oil (A) and Intralipid (B) cohorts. Box plots represent the distribution of direct bilirubin levels in each 2-week time period at the end of the trial, except for the last 2 weeks which represent the fish oil treatment period. The vertical color bars represent the median value, upper boundary of the box, the 75th percentile, and the 90th percentile. Whiskers extend to the most extreme observation within 1.5 IQRs of the 25th and 75th percentiles.

1. Patient treated in sept. 07
2. Patient treated in jan. 08



Fish oil as sole lipid source.

- Development of essential fatty acid deficiency?

Lipid emulsions from fish oil.

- Probably contains enough arachidonic acid (AA) to prevent deficiency of essential fatty acids.
- Contains EPA, which most efficient reduces production of triglycerides in the liver.

Gura et al, Use of a fish oil-based lipid emulsion to treat essential fatty acid deficiency in a soy allergic patient receiving parenteral nutrition. Clin Nutr. 2005;24:839-847



Lipid emulsions and PNALD

- Precise mechanism unknown.
- Increasing evidence for the a central role of LCPUFAS in lipid emulsions.
- Anti-inflammatory effect of alpha-tocopherol.
- Pro-inflammatory drive from more to less:
 - Soybean, olive, smof, fish oil.
- Resolvins and protectins.

Resolvins

- Potent regulator in "resolution"
- E-series- derived from EPA
- D-series- derived from DHA
- DHA COX2, aspirin
- Shown to reduce peritonitis, skin inflammation, and protect against reperfusion injury and neovascularisation.

Protectins

- Lipoxygenase converts **DHA** → → protectin **D1**
- In neuronal tissue = neuroprotectin D1
- Reduces neutrophil recruitment and inflammation.
- Blocks T-cell migration,
- Reduces TNF and interferon-gamma secretion
- Promotes T-cell apoptosis

