Deakin Research Online

This is the published version:


Available from Deakin Research Online:

http://hdl.handle.net/10536/DRO/DU:30045250

Reproduced with the kind permission of the copyright owner.

122 Postnatal Energy and Protein Deficits are Associated with Poor Neonatal Growth: Preliminary Results From a Swedish Population-Based Study

Stoltz E K M Sjöström¹, E Szymlek-Gay¹, I Öhlund¹, F Ahlsson², M Norman³, E Engström⁴, A Hellström⁴, V Fellman⁵, E Olhager⁶, F Serenius¹², K Källén¹ and M Domellöf¹

¹Department of Clinical Sciences, Pediatrics, Umeå University, Umeå, Sweden
²Department of Women’s and Children’s Health, Uppsala University, Uppsala, Sweden
³Department of Clinical Science, Intervention, and Technology, Karolinska Institutet, Stockholm, Sweden
⁴Institute of Clinical Sciences, Section for the Health of Women and Children, Sahlgrenska University, Gothenburg, Sweden
⁵Department of Pediatrics, Clinical Sciences, Lund University, Lund, Sweden
⁶Department of Pediatrics, Linköping University, Linköping, Sweden
⁷Center of Reproductive Epidemiology, Lund University, Lund, Sweden

Abstract

Background: Extremely preterm infants have extraordinarily high nutrient requirements and often show postnatal growth failure. It is still controversial, however, to what extent nutrition affects the weight development during the first weeks of life in these infants.

Aim: To explore possible associations of accumulated intake of macronutrients and weight development during the first 28 days of life.

Methods: All extremely preterm Swedish infants (< 27 gestational weeks) born between April 2004 and March 2007 (the EXPRESS-study) who survived >24 hours (n=600). Parenteral and enteral nutrition data and anthropometric data for the first 28 days were collected. Data are mean±SD.

Results: Preliminary analyses of data from 152 infants (84 boys, gestational age 25.2±1.0 weeks, birth weight 756±168g, birth length 32.2±2.6 cm and head circumference 23.2±1.5 cm) showed that during the first 28 days of postnatal life, mean fluid intake was 164±17ml/kg/d, energy 97±13kcal/kg/d, protein 2.9±0.5g/kg/d, carbohydrates 11.0±1.1g/kg/d and fat 4.6±1.2g/kg/d. From birth to 28 days, ΔSDS was -2.2 SD for weight, -2.3 SD for length and -1.4 SD for head circumference. There was a significant correlation between ΔSDS for weight and protein intake (r=+0.50), energy intake (r=+0.44) and fat intake (r=+0.39) (p< 0.001 for all).

Conclusions: Extremely preterm Swedish infants receive lower amounts of macronutrients, especially protein and energy, compared with current recommendations, and show significant postnatal growth failure. Our observation of significant positive associations between macronutrient intakes
and weight change implies that improved early nutrient intakes may be one way to prevent postnatal growth retardation in these infants.