

Use of high-dose early parenteral lipid in very preterm infants



To the Editor:

We read with great interest the prospective randomized trial on use of high dose early parenteral lipid in very preterm infants by the HELP trial investigators.¹ This trial addresses the clinical dilemma regarding the optimal initial dose for lipid administration in preterm infants. The authors reported a decrease in early postnatal weight loss with higher starting dose of lipids, similar to previously published data.² However, we would like to highlight a few issues and request a clarification.

The primary outcome of the study was the proportion of postnatal weight loss within the first 2 weeks of life. Early postnatal weight loss mainly depends on the postnatal contraction of an expanded fetal extracellular water volume.^{3,4} Extracellular fluid loss is highly variable in preterm infants and weight loss may not reliably estimate the nutritional deficit. Although the authors found a difference in primary outcome (proportion of postnatal weight loss), a lack of difference in the median time to regain birth weight undermines the clinical relevance of the same.⁵ Could the later outcomes, such as extrauterine growth restriction (at 36 weeks postmenstrual age), be purely attributed to the effect of higher lipid intake in the first week of life?

Also, it is unclear as to why the timing of initiation of lipid infusion was delayed for infants in the control group. The mean age of starting lipids in the control group was 17.5 hours, compared with 13.8 hours in the experimental group. Although randomization was stratified as per birth weight, the investigators did not report the number of infants born weighing less than 1000 g. It would be interesting to know the tolerance and outcomes of the higher lipid dose in this subgroup.

Khushboo Kanwal, MD
Anish Pillai, MD, DNB
Nandkishor Kabra, MD, DM
 Department of Neonatology
 Surya Hospitals
 Santacruz West
 Mumbai, Maharashtra, India

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Reply



To the Editor:

We appreciate the insightful comments made by Kanwal et al about our article and the opportunity to respond. Kanwal et al discuss that postnatal weight loss mainly depends on the contraction of fetal extracellular water volume. Although we agree about the important role of extracellular water contraction, several studies show that excessive postnatal weight loss occurs mostly when energy and protein intake is inadequate and providing early adequate nutrition minimizes postnatal weight loss.¹⁻⁴ Regarding the lack of difference in the time to regain birthweight, our study was not powered to detect this difference. It is worth mentioning that infants in the intervention group had 1 day less time to regain birthweight. Although this difference is not statistically significant, it matches the reduction of 2.3% (95% CI 0.4-4.1) in postnatal weight loss in the intervention group. Preterm infants lose approximately 2% of birthweight per day in the first few days of life. Every 2% loss is generally expected to result in 1 additional day to regain birthweight.

The timing of initiation of lipid infusion was purposely earlier in the intervention group. Our central pharmacy provided the neonatal intensive care unit with a ready-to-use parenteral lipid emulsions. Infants in the intervention group received lipid emulsions soon after randomization while those in the control group followed the neonatal intensive care unit protocol where lipid emulsions is ordered in the morning and administered once received.

Infants were equally distributed between the 2 birthweight strata as per stratification method. We did not report the outcomes in each stratum given the sample size. However, we would like to highlight that maximal weight loss in infants <1000 g was lower in the intervention group (10.8% vs 13.1%) as was the incidence of extrauterine growth restriction (45% vs 73%). There was no significant difference in the incidence of hypertriglyceridemia between the 2 groups.

Belal Alshaikh, MD, MSc, FABP
 Neonatal Nutrition and Gastroenterology Program,
 Department of Pediatrics
 University of Calgary
 Calgary, Canada

Kamran Yusuf, MD, FAAP
 Department of Pediatrics, University of Calgary
 Calgary, Canada