Individualized Portification of Preterm Expressed Breast Milk: Randomized Control Trial

Tiew WT, Cheah FC, Raja Lope RJ, Ismail J

Neonatal Intensive Care Unit (NICU), Department of Paediatrics, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia Medical Centre, 56000 Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Supplementing breast milk with fortification is utmost important strategy to improve postnatal growth in preterm infants. We aimed to compare differences in the growth of very low birth weight preterm infants receiving individualized (IF) or standardized fortification (SF) of expressed breast milk (EBM) feeds in NICU. **Methods:** Preterm infants of <34 weeks' gestation and birth weight <1500g who were fed with EBM (120mL/kg/day) were recruited and randomly assigned into IF or SF group. All infants received human milk fortifier (HMF). We targeted protein intake of 4.5g/kg/d in the IF group using additional whey protein concentrate as guided by the measured protein content of breast milk using a bedside milk analyzer. **Results:** Total of 37 infants were compiled (IF n=19; SF n=18). The IF compared to SF infants had lower mean birth weight [1047(267) vs 1211(22)3g]. There were no significant differences in the rate of weight gain [IF, 22.4(4.5) vs SF, 20.3(3.9)g/kg/d; p=0.135] or length growth [IF, 1.66(0.68) vs SF, 1.43(0.54)mm/day; p=0.272] between groups. However, infants <30 weeks gestation had significantly more rapid mean head circumference growth [IF, 1.27(0.33) vs SF, 0.91(0.3)mm/day, p=0.017], weight gain [IF, 23.4(4.6) vs SF, 18.9(4.8)g/kg/d, p=0.039] and length gain [IF, 1.79(0.7) vs SF, 1.22(0.44)mm/day, p=0.042]. Blood urea levels were within normal limits. No feeding intolerance or NEC was observed. **Conclusion:** Preterm infants of lower mean birth weight showed a trend towards better growth when fed with human milk of greater protein content. The higher protein resulted in more rapid postnatal growth in the more severe preterm.

KEY WORDS:
Fortification, breast milk, protein