

## Pediatrics & Neonatal Healthcare 2017: Effect of feeding schedule on time to reach full feeds in neonates weighing 500 to 1500 grams: A randomized trial - Showkat Hussain Tali - AIMSRS

Showkat Hussain Tali

<sup>1</sup>AIMSR, India

**Aim:** To compare the effect of 3-hourly (3-h) versus 2-hourly (2-h) feeding schedules on time to reach full feeds in neonates weighing less than 1500 grams. This was a randomized trial conducted in a level 3 neonatal intensive care unit, Surya Children's Hospital Mumbai, India. We enrolled 120 preterm neonates with birth weights of 501 to 1500g. The neonates were divided into 2 strata based on birth weight: 501 to 1000g and 1001 to 1500g. The neonates were randomized into 2 organic feeding schedules: 8 or 12 feeds (3-h or 2-h schedules, depending upon randomization), and a uniform feeding protocol was followed. Analysis was performed using the intention-to treat principle. Categorical variables were compared using the Chi-square test. Continuous measures between groups were compared using 2-sample t test or Mann Whitney U test as appropriate. Despite the fact that feeding a very low birth weight neonate is a fundamental and inevitable part of its management, this is a field which is beset with controversies. Optimal nutrition improves growth and neurological outcomes, and reduces the incidence of sepsis and possibly even retinopathy of prematurity. There is a great deal of heterogeneity of practice among neonatologists and pediatricians regarding feeding infants. A working group on feeding guidelines for infants was constituted in McMaster University, Canada. The group listed a number of important questions that had to be answered with respect to feeding infants, systematically reviewed the literature, critically appraised the level of evidence, and generated a comprehensive set of guidelines. These guidelines form the basis of this state-of-art review. The review touches upon trophic feeding, nutritional feeding, fortification, feeding in special circumstances, assessment of feed tolerance, and management of gastric residuals, gastro-oesophageal reflux, and glycerine enemas. Data were analysed using IBM SPSS version 21 software.  $P < 0.05$  was considered significant. Primary Outcome measures were time (in days) to reach full feeds (defined as tolerance of 150mL/kg/d of feeds for at least 48 h).

Secondary Outcome measures were time (in days) to attain birth weight; time (in days) to discharge; weight, length, and head circumference at discharge; incidence of feed intolerance, necrotizing enterocolitis (NEC), intravascular haemorrhage (IVH), screen-positive sepsis, culture-positive sepsis, hypoglycemia, apnoea, jaundice and retinopathy of prematurity (ROP), duration of total parental nutrition (TPN) and nursing; and mortality.

**Results:** A total of 215 neonates were assessed for eligibility, of which 95 were excluded. Hence, 120 neonates were enrolled in

the trial. There was no significant difference in time (in days) to reach full feeds in the 2-h versus 3-h groups ( $9.53 \pm 4.26$  vs.  $9.85 \pm 5.48$ ;  $P = 0.73$ ). Adequate nutrition is essential for the optimal growth and health of very low birth weight infants. Enteral nutrition is preferred to total parenteral nutrition (TPN) because the former avoids complications related to vascular catheterization, sepsis, adverse effects of TPN, and fasting. Early parenteral nutrition in these babies remains critical and should be used as an adjunct to enteral nutrition. The overarching goal while feeding infants is to reach full enteral feeding in the shortest time, while maintaining optimal growth and nutrition and avoiding the adverse consequences of rapid advancement of feeding. Attaining this goal is more difficult than it sounds, and controversies abound. A multi-disciplinary working group in McMaster University (comprised of staff neonatologists, fellows, nutritionists, nurse practitioners, nurses, lactation consultants, and occupational therapists) conducted a structured literature search, critically appraised the evidence, presented it to a wider group of neonatologists, and came up with practical suggestions to feed VLBWI - the basis for this review. There are some areas where there is limited evidence, and in these areas we have suggested reasonable approaches based on expert consensus. Wherever possible, we have stated the level of evidence as per the Centre for Evidence-based Medicine.

There was no significant difference between the 2 groups in any of the secondary outcomes. The total time spent per day in feeding was significantly lesser in the 3-h feeding schedule groups ( $P = 0.04$ ). Subgroup Analysis revealed that among the neonates in the lower birth weight strata (501 to 1000g), those fed 2 hourly reached full feeds earlier compared with those fed 3-hourly (2-h group:  $11.24 \pm 2.88$  d vs. 3-h group:  $14.14 \pm 4.98$  d;  $P = .041$ ). Conclusions: There was no significant difference in time to reach full feeds in all the neonates, irrespective of whether they were fed 2-h or 3-h. However, neonates  $< 1000$  g reached full feeds earlier when fed more frequently (2-h feeding schedule).