A semidemand feeding protocol reduced time to full oral feeding in healthy preterm infants


QUESTION: In healthy preterm infants, is a semidemand feeding protocol more effective than the standard practice of scheduled feedings for reducing the time to attain full oral feeding and maintaining a satisfactory weight gain?

Design
Randomised (unclear allocation concealment), unblinded controlled trial with [follow up to attainment of full oral feeding]*.

Setting
2 neonatal intensive care units in Cincinnati, Ohio, USA.

Participants
89 preterm infants who were 32 to <34 weeks postconceptual age and appropriate for gestational age. Infants with congenital anomalies, gastrointestinal conditions, neurological diagnoses, or grade III/IV intracranial haemorrhage were excluded. 81 infants (91%) completed the study (mean postconceptual age at study entry 32 wks, 53% boys).

Intervention
44 infants were allocated to a semidemand feeding protocol. 10 minutes of non-nutritive sucking (NNS) were provided every 3 hours, followed by an assessment of behavioural state (modified Anderson Behavioral State scale). If the infant was judged to be in a state of restlessness or wakefulness (scores ≥3), an oral feeding was offered. If the infant was in a sleep state, he was allowed to sleep for another 30 minutes and then assessed again; if at the second assessment the infant was still in a sleep state, he was fed by gavage. 45 infants were allocated to the control protocol, which comprised prescribed volumes of oral and/or gavage feedings at 3 hour intervals, with feeding time restricted to <30 minutes per feeding. Infants were started at 1 oral feeding per 24 hours, and advanced daily according to the protocol depending on weight gain, residual volumes ≤10% before each feeding, and absence of apnoea or bradycardia during oral feeding. In both groups, infants who did not ingest the prescribed nutrient volume orally were given the remainder by gavage.

When an infant attained full oral feeding (ie, ingested all nutrient volumes in a 24h period without any gavage), the nasogastric tube was removed and the infant continued his or her study protocol for an additional 48 hours with all feedings offered orally. Infants in the semidemand group continued with behavioural assessments every 3 hours, but the time between feedings increased from 3.5 hours to up to 5 hours if an infant was sleeping. Infants in the control group continued to be fed prescribed volumes on a 3 hour schedule to meet 105–130 kcal/kg/day.

Main outcome measures
Days to full oral feeding and weight gain.

Main results
Infants who were allocated to a semidemand protocol had a shorter time to full oral feeding (mean 5 d) than infants allocated to the control group (mean 10 d) (difference between means 5 d, [95% CI 3.4 to 6.6])†. The groups did not differ for weight gain: during the gavage to oral feeding phase, the semidemand group gained a mean of 23.5 g/day and the control group gained a mean of 26.3 g/day; and during the full oral phase, the semidemand group gained a mean of 31.9 g/day and the control group gained a mean of 33.5 g/day.

Conclusions
Healthy preterm infants who were fed on a semidemand schedule contingent on behavioural state achieved full oral feeding 5 days sooner than infants who were given scheduled feedings. Infants in both groups had satisfactory weight gains.

*Information provided by author.
†Calculated from data in article.