Feeding Behaviors for Premature Infants Who Received Extended Tube Feedings

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Background
- 30% of premature infants exhibit feeding problems
- Feeding that circumvents the oral cavity alters the infant’s feeding experience and may lead to difficulty with oral feeding. Data are lacking regarding infant behavior surrounding the early tube feeding experience and how early behavior may be indicative of later oral feeding difficulty

Method
- The research was conducted at a Level IV Neonatal Intensive Care Unit in the Midwest, USA
- A prospective design estimated changes in feeding behavior over time and their variability
- Infants were video recorded weekly for 30 minutes pre-, intra-, and post-feeding
- Behavioral State (asleep, awake, drowsy, or crying) and Orally Directed Behaviors (ODBs) such as mouthing, swipes at mouth, hand to mouth, sucking on hand, sucking on tongue, empty sucking, tonguing, rooting were coded by viewing the video recordings

Results
Sample Descriptives:
- Mean gestational age at birth = 28.15 weeks
- Mean Apgar Score at 5 minutes = 6.65
- 27 were delivered by Cesarean section
- 1 infant solely tube feeding at hospital discharge
- Sleep states predominated pre-feeding (mean frequency 35.7) and intra-feeding (mean frequency 32.3). The active alert state increased from a mean frequency of 0.5 to 4.6 pre-feeding followed by 3.8 – 8.4 intra-feeding and 0 – 14.1 post-feeding over the first 5 weeks
- The mean frequencies for the ODBs of mouthing and tonguing were highest throughout hospital stay
- During the 15 minutes pre-feeding, tonguing occurred at the highest frequency (mean 2.5) followed by mouthing (mean 1.4)
- None of the infants exhibited sucking on hand, which is a more mature behavior
- Fewer ODBs were exhibited post-feeding throughout hospital stay
- When ODBs were evaluated by age, younger infants between 29-33 weeks postmenstrual age (PMA) exhibited a similar mean frequency of all ODBs pre-feeding (1.2) compared with infants between 34 - 42 weeks (1.5), while the mean frequency of ODBs decreased (1.4 vs. 0.8 respectively) intra-feeding. ODBs decreased with age from a mean of 1.3 – 0.8 post-feeding
- When ODBs were evaluated by type of feeding (tube only, tube plus oral, oral only) the average frequency of pre-feeding behaviors was consistent. The frequency of intra-feeding ODBs were highest during tube feedings. When infants received full oral feeds, they exhibited the highest frequency of ODBs

Purpose
- For hospitalized infants who have long term exposure to tube feedings, we prospectively identified the range of early feeding behaviors encompassing the infant’s feeding experience through hospital discharge to address the question: What are the early feeding behaviors of infants who receive extended tube feedings and do these behaviors change with maturation?

Sample
N = 35
- Inclusion Criteria: Premature infants receiving two weeks of tube feedings, post surgical infants, may be receiving oxygen, previously treated for sepsis, pneumonia, or mechanical ventilation.
- Exclusion criteria: oral cavity anomalies, HIE, chromosomal disorders, receiving mechanical ventilation, or significant neurologic deficit.

Conclusions
- The frequency of pre- and post-feeding orally directed behaviors was highest when infants achieved full oral feeding, suggestive of increased maturity.
- Interventions are required to address the maturation of orally directed behaviors and alleviate the long term consequences of oral feeding difficulty.