Cue Based Infant Driven Feedings

Advocate Sherman Hospital
Special Care Nursery 2013
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Background

One of the last hurdles a preterm infant must overcome in order to be discharged home = learning how to nipple feed enough to maintain/gain weight.

Traditionally, nurses have focused on the *quantity* of the feedings, as opposed to the *quality* of the feedings without regard for any stress an infant might experience.
Background

Infants who are stressed at a feeding, can shut down not only for that feeding, but for future feedings.

Extremely premature infants are at risk for: nipple aversion feeding difficulties.
Background

*Shaker (1999) discussed importance of feeding preterm infants “in an individualized, developmentally supportive approach”

- monitoring signs of stress
- slowing down rate of fluid bolus
Background

Ludwig and Waitman’s (2007) implementation of cue-based feedings

Goal:
• to provide a **safe** feeding for infants
• “maximizing intake and minimizing stress”.
• focused on 1. Feeding readiness
  2. stress cues
  3. quality of nippling
  4. Caregiver techniques
Purpose: Quality with Quantity

To improve the **quality** of nipple feedings for infants, especially premature infants, while still providing the **quantity** of intake needed for growth and discharge home.

**Goals:**
- Increase safety of infant feedings
- **↓** infant stress with feedings
- Feed via a nasogastric tube once showing stress cues
- Increase staff/parent awareness of infant feeding cues and stress cues
- **↓** length of stay in Special Care Nursery
Methods

A feeding protocol was implemented to improve the feedings for Special Care Nursery infants in an effort to recognize: infant feeding readiness cues, infant stress cues, decrease infant stress with feedings.

Education was provided to: SCN neonatologists, NNPs, SCN nursing staff, parents of SCN infants.

Infants who showed stress cues with nipple feeding before the total feeding volume was taken by mouth were given the remainder of the feeding via a nasogastric tube, as ordered by the physician.
Staff Education

Staff education included:

- **A pre-study survey** was given to the SCN nursing staff, assessing their knowledge re: stress cues and their confidence in their ability to teach parents to recognize stress cues in their infants.

- **Mandatory inservice** for SCN nursing staff (RNs, PCTs)

- **Neonatologists/NNPs** were given: 1. articles  
  2. the procedure  
  3. the different scales to be used

- **A Cue based Infant Driven Feeding Procedure** was implemented.

- **Bedside laminated cards**:  
  - stress cues  
  - quality of nippling scale  
  - feeding readiness scale  
  - caregiver techniques

- **Pocket-sized laminated cards** with the stress cues feeding scales caregiver techniques
Parent Education

**Parent Education:** Parents were given an educational sheet “Guidelines for feeding your baby” with:

1. feeding readiness cues
2. stress cues
3. how to calm a crying, stressed infant

- Parents were asked to sign the guidelines for feeding sheet, as informed consent to participate in this program (per IRB request).
- Parent survey given prior to discharge

**Common stress cues in infants:**

<table>
<thead>
<tr>
<th>Cue</th>
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<th>Cue</th>
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<tbody>
<tr>
<td>apnea</td>
<td>bradycardia</td>
<td>desaturations</td>
<td>color changes</td>
</tr>
<tr>
<td>coughing</td>
<td>choking</td>
<td>gagging</td>
<td>gulping</td>
</tr>
<tr>
<td>hiccups</td>
<td>yawning</td>
<td>sneezing</td>
<td>hypotonia</td>
</tr>
<tr>
<td>hyperextension of extremities</td>
<td>extending hand with splaying fingers</td>
<td>tongue tip to roof of mouth</td>
<td>glassy eyed</td>
</tr>
<tr>
<td>staring</td>
<td>smiling</td>
<td>panicked look</td>
<td>frowning</td>
</tr>
<tr>
<td>spitting up</td>
<td>gaze aversion</td>
<td>splayed toes</td>
<td>arching</td>
</tr>
<tr>
<td>fatigue</td>
<td>irritability</td>
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Baby in a quiet alert state
Results

• Control group: 18 Special Care Nursery (SCN) infants January-February 2013.

• Study group: 18 SCN infants March 21st–April 18th (4 week study)

• Mean gestational ages: pre-study group 36.19 weeks post-study group 35.13 weeks

• Mean birth weights: pre-study group 2579.33 grams post-study group 2673.89 grams
Maintaining infant safety during this cue based feeding study

Wet diapers and stooled diapers were measured in the first 3 days of full feedings for each group of infants.

- No statistical difference in wet/stooled diapers

To verify that the infants’ hydration was maintained, infants were weighed daily and weights in the first 3 days of full feedings were analyzed.

- As expected, infants in both groups had a similar weight loss in the first 3 days of full feedings.
Use of nasogastric tubes for feeding

Nasogastric use was looked at 2 ways: (in 1st 3 days of full fdgs)
1. # of ng uses q 24 hrs pre- and post- study
2. % of ng use pre and post study

In each case, there was an increase in the # of times an ng tube was used, as well as the % of use in the post study group, indicating that caregivers recognized infant stress and switched to ng feedings.
Length of stay

One of the main questions to answer:

Was there a decreased length of stay by instituting cue based infant driven feedings in the SCN?

** There was a trend toward fewer days in the hospital and in the SCN between pre- and post-intervention groups.

- However, the results did not reach statistical significance in the short term of this study.
Parent Survey Results

**Parent survey:** control group = 7 parents took survey
study group = 18 parents took survey

Parents of the study infants reported a higher confidence in their ability to feed and care for their infant on discharge than the parents of infants in control group.
Staff recognition of stress cues in SCN infants:
Before education,
➢ 79% of nursing staff could list 0 - 9 stress cues.

After receiving education and teaching stress cues and feeding readiness to parents of SCN infants,
➢ 87% of nursing staff could identify 7 - 18 stress cues in infants.
Conclusions/Limitations

Cue-based feeding is safe and allows for early discharge with less infant stress.

Limitations:

Limited # of study subjects:
- 16 bed Special Care Nursery
- having to exclude babies due to nondocumentation of pre- and post feeding weights on breastfeeding infants
- Some early preterm infants were still hospitalized and could not be included in the study
Future Directions

- Continue to educate parents on feeding readiness/stress cues
- Audit charts for the past year
- If audit proves statistically significant, publish a research article
- Expand this program to Advocate Sherman’s Mother/Baby unit, focusing on the late preterm infants
- Potential to move more to cue based infant driven feedings in the Special Care Nursery
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Questions?

Thank you for your kind attention.