A Pacifier –Activated Music Player with Mother’s Voice Improves Oral Feeding in Preterm Infants

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Background

- **Preterm infants** must take all their food by mouth to leave the Neonatal Intensive Care Unit for home.
- **Feeding by mouth** requires brain maturation and training, and is very difficult and energy-intensive for preterm infants.
- **Nonnutritive sucking** is the first step to oral feeding and can be taught through operant conditioning with positive reinforcement.
- **Calibrated types of music** (single octave, repetitive, major mode) can elicit a positive response from preterm infants’ nervous systems.
- **Mother’s voice** can increase nervous system stability and growth and improve deep sleep in preterm infants.

Approach

**The design:** randomized controlled trial (most rigorous clinical trial design) testing whether mother’s voice singing lullabies through a pacifier-activated music (PAM) player would improve oral feeding skills in preterm infants

**The patients:** 94 preterm infants (24-33 weeks at birth) including those with brain injury, assigned to 2 groups

**The intervention:** 5 daily 15-minute sessions of either PAM with mother’s voice or no PAM. Routine pacifier sucking, maternal singing and care continued in both groups.

Findings

- The PAM group **doubled** their oral feeding rates and volumes in 5 days and had their feeding tubes removed **one week earlier** than the controls.
- No adverse effects on stress levels or growth.

<table>
<thead>
<tr>
<th>Days to fully eating by mouth/no feeding tube</th>
<th>Days of Hospital Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAM</td>
<td>31</td>
</tr>
<tr>
<td>No PAM</td>
<td>38</td>
</tr>
<tr>
<td>PAM</td>
<td>41</td>
</tr>
<tr>
<td>No PAM</td>
<td>58</td>
</tr>
</tbody>
</table>

Future Directions

New studies in infants

- with feeding difficulties from other medical conditions
- deprived of parent’s voice during long hospitalizations

This intervention protocol will be freely available to all on the Agency for Healthcare Research and Quality website in July 2014 (US Dept. of Health and Human Services).

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