PEdiatric Feeding Tube Weaning

Markus Wilken

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PEDIATRIC TUBE FEEDING INDICATIONS

Coughlin 1991
Behrends 1997
Avitsland 2006
Srinivasan 2009

- Dysphagia/Neurologic
- Heart Disease
- Dystrophia
- Other Diseases

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IMPACT OF TUBE FEEDING ON FEEDING BEHAVIOR

• Oral-motor and sensory development
  • Reduces swallowing activity, vomiting, over-stimulation (5)

• Motor development
  • Mobility can be impaired by the mechanisms of tube feeding

• Health
  • Complications, hospitalization, feeding intolerance (5,6)

• Initiative
  • No Hunger, no thirst, no initiative to eat (7)

• Feeding Relationships
  Lost opportunities (8), parental stress (9), conflicting recommendations
## Feeding Disorder in Tube-Fed Children

**Symptoms per Day**

<table>
<thead>
<tr>
<th></th>
<th>3-11 m (N=35)</th>
<th>11-22 m (N=33)</th>
<th>23-46 m (N=33)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food refusal</td>
<td>2.9 (2.4)</td>
<td>1.9 (1.4)</td>
<td>2.3 (1.5)</td>
<td>.09</td>
</tr>
<tr>
<td>Vomiting</td>
<td>1.3 (1.3)</td>
<td>1.7 (2.0)</td>
<td>0.8 (1.1)</td>
<td>.05*</td>
</tr>
<tr>
<td>Gagging</td>
<td>1.7 (1.7)</td>
<td>2.2 (3.1)</td>
<td>2.2 (2.7)</td>
<td>ns.</td>
</tr>
<tr>
<td>Force feeding</td>
<td>1.7 (2.7)</td>
<td>0.7 (1.4)</td>
<td>0.4 (1.1)</td>
<td>.02*</td>
</tr>
<tr>
<td>Bizarre eating</td>
<td>0.9 (2.1)</td>
<td>0.3 (0.9)</td>
<td>0.2 (0.4)</td>
<td>.09</td>
</tr>
<tr>
<td>Oral motor dysfunction</td>
<td>1.2 (2.1)</td>
<td>1.1 (2.0)</td>
<td>1.1 (1.9)</td>
<td>ns.</td>
</tr>
<tr>
<td>Total of symptoms</td>
<td>9.7 (6.8)</td>
<td>7.9 (5.8)</td>
<td>6.7 (4.5)</td>
<td>.11</td>
</tr>
</tbody>
</table>

How to establish an adaptive feeding pattern in these cases?

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PHASES OF TUBE WEANING

• Intake & Assessment
• Preparation
• Hunger Induction
• Intensive Tube Weaning
• Monitoring
READINESS FOR WEAN INSTRUMENTS

• Parental Interview
• Structured Questionnaire
• Videographed Feeding Situation
• Medical Reports
• Growth charts
Continuum of Food Acceptance

Food Aversion

Food Refusal  Food Dislike  Food Neutrality  Food Interest

Food Enjoyment

Treatment Goal:
Move to zone green
Home base Feeding Tube Weaning
# HUNGER INDUCTION

## Fluidal Intake

<table>
<thead>
<tr>
<th>time</th>
<th>before</th>
<th>day 1</th>
<th>day 2</th>
<th>day 3</th>
<th>day 4</th>
<th>day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>nutrit</td>
<td>fluid</td>
<td>nutrit</td>
<td>fluid</td>
<td>nutrit</td>
<td>fluid</td>
</tr>
<tr>
<td>8 am</td>
<td>240</td>
<td>120</td>
<td>140</td>
<td>120</td>
<td>40</td>
<td>120</td>
</tr>
<tr>
<td>12 am</td>
<td>180</td>
<td>120</td>
<td>180</td>
<td>120</td>
<td>180</td>
<td>80</td>
</tr>
<tr>
<td>4 pm</td>
<td>180</td>
<td>120</td>
<td>180</td>
<td>80</td>
<td>180</td>
<td>80</td>
</tr>
<tr>
<td>8 pm</td>
<td>240</td>
<td>120</td>
<td>240</td>
<td>80</td>
<td>240</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>840</td>
<td>480</td>
<td>740</td>
<td>400</td>
<td>640</td>
<td>360</td>
</tr>
</tbody>
</table>

## Nutrition intake

<table>
<thead>
<tr>
<th></th>
<th>day 1</th>
<th>day 2</th>
<th>day 3</th>
<th>day 4</th>
<th>day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluidal Intake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition intake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urin/Bowl Move</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleep Behavior</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

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INTERVENTIONS

- Therapy in Playing
- Feeding Therapy
- Play Picnic
- Parental Counselling
- Cooperation with the Medical Doctor
FOLLOW UP (SIX MONTHS)

• Regular contact by phone for 4 weeks
  • One conference per week
• Daily contact possible for 6 months
• Counseling in special situations:
  • Infection
  • Short term food refusal
  • Growth and thriving
  • Removal of g-tube
EVALUATION:
FEEDING DISORDER SYMPTOMS

- Successful: before treatment (N=29)
- Successful: after treatment (N=29)
- Failed: Before treatment (N=3)
- Failed: After treatment (N=3)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Successful</th>
<th>Failed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Refusal</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td>Vomiting</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td>Gagging</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td>Force Feeding</td>
<td>29</td>
<td>3</td>
</tr>
</tbody>
</table>

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**GROWTH AND TUBE FEEDING**

<table>
<thead>
<tr>
<th></th>
<th>Before treatment</th>
<th>After treatment a</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body weights (z-score)</strong> 1</td>
<td>-2.5 (1.5)</td>
<td>-2.6 (1.1)</td>
<td>.24</td>
</tr>
<tr>
<td><strong>Body (z-score) 1</strong></td>
<td>-2.8 (2.1)</td>
<td>-2.5 (1.5)</td>
<td>.49</td>
</tr>
<tr>
<td><strong>BMI (z-score) 1</strong></td>
<td>-1.1 (1.7)</td>
<td>-1.2 (1.1)</td>
<td>.77</td>
</tr>
<tr>
<td><strong>Feeding Tube 2</strong></td>
<td>31 (100)</td>
<td>6 (19.3)</td>
<td>.05</td>
</tr>
<tr>
<td><strong>Nasogastric Tube 2</strong></td>
<td>16 (51.6)</td>
<td>1 (3.2)</td>
<td>.05</td>
</tr>
<tr>
<td><strong>Gastrostoma 2</strong></td>
<td>12 (38.7)</td>
<td>4 (12.9)</td>
<td></td>
</tr>
<tr>
<td><strong>Jejustoma 2</strong></td>
<td>3 (9.7)</td>
<td>1 (3.2)</td>
<td></td>
</tr>
<tr>
<td><strong>Percentage fed via Tube 1</strong></td>
<td>86.2 (18.0)</td>
<td>11.6 (29.5)</td>
<td>.001</td>
</tr>
</tbody>
</table>

Values are either mean (SD) or number (%). Comparisons were done using two-sided t-tests for ordinate data or \( \chi^2 \) test for frequency distributions. aFollow up one to three years after treatment.

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What do you want to discuss or know?

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More details on the treatment example:
http://www.lewisjack.blogspot.com
REFERENCES