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TUBE FEEDING FOR DYSMOTILITY CONSUMERS

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ThriveRx Clinical Specialist

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## Nutrition Support Options for Consumers with GI Dysmotility

### Diet
- Nutrient-specific: low fiber, low fat
- Hydration: Increasing fluid intake to promote adequate hydration
- Ingestion modifications: small meals, eating more frequent meals, drinking fluids with solid food

### Enteral Nutrition (EN)
- Nocturnal hydration/feeding
- Supplement specific nutrients to achieve nutritional goals

### Parenteral Nutrition (PN)
- Nutrition infused intravenously to meet up to 100% of nutritional needs

### Intravenous Hydration
- Fluid and electrolytes administered intravenously

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Benefits of Nutrition Support

- Nutrition support provides alternatives to delivering nutrients when eating is not possible or not enough calories can be absorbed.
- Nutrition support provides bowel rest when needed.
- Nutrition support can improve surgical results for malnourished individuals.
Initiating Nutrition Support

1 A plan starts with an evaluation of the GI function in order to determine nutritional treatment options.

2 A thorough assessment of the overall nutritional status should be completed that includes:
   - Diet and weight history
   - Food allergies
   - Meal patterns
   - Medication history
   - Laboratory data
   - Bowel movement patterns

3 Symptom evaluation and identification of trigger points in effort to provide a nutritional plan that minimizes negative symptoms.
Benefits of Enteral Nutrition

- Maintains the health of the gastrointestinal (GI) tract
- Reduces the inflammatory process
- Stimulates the growth of the villi lining the small intestine
- Improves GI transit time
- Cost-effective
Enteral Nutrition: Tube feedings

Selection of EN formula depends on many factors:
- Bowel anatomy
- Area of the GI tract affected by the underlying condition
- EN formula characteristics

Enteral formula characteristics:
- Intact: intact nutrients (similar to food)
- Polymeric: partially-digested nutrients
- Hydrolyzed (semi-elemental and elemental): almost completely-digested nutrients
- Osmolality: concentration
- Fiber content

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Delivery of Enteral Nutrition

- Length of therapy
- Type of feeding tube
- Delivery method

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Enteral Tube Location

- **Nasogastric**
  - Through the nose to the stomach

- **Nasointestinal**
  - Through the nose to the small intestine

- **Gastrostomy**
  - Surgically: through the stomach wall
  - Endoscopically (PEG)

- **Jejunostomy**
  - Surgically: through the abdominal wall to the small intestine
  - Endoscopically (PEJ)
The Benefits of Early Tube Placement

- Prevention of dehydration and electrolyte abnormalities
- Prevention of weight loss
- Prevention of malnutrition
- Improvement in fatigue
- Low risk associated with placement of an NG or NJ tube
Determining Tolerance to EN

- Physical exam
- Laboratory measurements
- Weight changes
- Number of bowel movements
- Hydration status
Improving Tolerance to EN

- Modify the oral diet (for consumers on EN and diet)
- Adjust EN formula and/or modulars
- Modify the rate of EN infusion
- Confirm that the head of the bed is at a 30° angle
- Alter medications to improve absorption and transit time
Small, frequent meals are the easiest to tolerate.
Try ¼ to ½ c. of a given food at a time and monitor your response.

Continue to add new foods to your diet.
It is ok to re-try foods that you were unable to tolerate previously. Sometimes trying a smaller amount at a later time will allow you to increase the variety of foods in your diet.

Chew your food well.
This is the first step in digestion and can make a huge difference in GI tolerance.

Liquids tend to be easier to tolerate and can improve total caloric intake.
If your fullness increases as the day progresses, try switching over to liquid beverages that contain calories (shakes, juice, milk, etc.).

Don’t lie down after a meal.
Try to sit up or walk around to help the food move throughout your GI tract.
Avoiding Dietary Fiber

Why does fiber slow the movement of food throughout the GI tract?

- Fibers can attract water and form a gel within the stomach and intestine, which slows the movement of food throughout the GI tract.
- Extensive research has demonstrated that patients on a high-fiber diet experience more abdominal pain, discomfort, nausea and vomiting.
- An overview of the fiber content within the food groups is outlined in the table below.

<table>
<thead>
<tr>
<th>FOOD GROUPS</th>
<th>FOODS TO AVOID</th>
<th>FOODS TO CHOOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains, cereal, pasta</td>
<td>Whole grains, brown rice, popcorn, potatoes with the skin, high fiber cereals, rye bread, whole wheat breads, corn bread</td>
<td>White bread, white rice, crackers, refined grains, pretzels, refined cereals</td>
</tr>
<tr>
<td>Fruits, vegetables and legumes</td>
<td>Skins, nuts and seeds of the plant. Avoid uncooked fruits or vegetables. Avoid corn, onion, lentils, peas and beans</td>
<td>Cooked or canned fruits and vegetables with the skin removed, casseroles, Sweet or white potatoes without the skin</td>
</tr>
<tr>
<td>Milk and dairy products</td>
<td>Dairy products that are fortified with fiber.</td>
<td>Dairy should be consumed as tolerated as this is a naturally fiber-free food</td>
</tr>
<tr>
<td>Meats, fish, eggs and poultry</td>
<td>Tough cuts of meat, processed meats (hot dogs, sausage, cold cuts)</td>
<td>Baked, broiled, tender meats/fish/poultry, tofu, ground meats, smooth peanut butter and any style eggs</td>
</tr>
</tbody>
</table>
• Including liquid fats, like oils, or small amounts of fat at each meal are ways to increase fat intake while minimizing discomfort.

• Extensive research has demonstrated that patients on a high-fat diet experience more abdominal pain, discomfort, nausea and vomiting.

• An overview of the fat content within the food groups is outlined in the table below

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<td>Grains, cereal, pasta</td>
<td>Crackers, chips, fried breading</td>
<td>White bread, white rice, crackers, refined grains, pretzels, refined cereals</td>
</tr>
<tr>
<td>Fruits, vegetables and legumes</td>
<td>Fruits, vegetables or legumes that are fried or cooked with excessive oil/butter</td>
<td>Cooked or canned fruits and vegetables with the skin removed, sweet or white potatoes without the skin</td>
</tr>
<tr>
<td>Milk and dairy products</td>
<td>2% or whole dairy products (milk, yogurt, cheese)</td>
<td>If tolerated, skim or 1% dairy products (milk, yogurt, cheese)</td>
</tr>
<tr>
<td>Meats, fish, eggs and poultry</td>
<td>High fat beef/pork/lamb. Avoid meats with visible fat (white-marbling)</td>
<td>Egg whites, skinless chicken or turkey breast, lean pork/beef/lamb/veal, liver, fish, shrimp and crab</td>
</tr>
</tbody>
</table>
Medications for Consumers with Dysmotility

- Prokinetic agents
- Antiemetic drugs
- Laxatives and stool softeners
- Analgesics
- Gastric acid suppressants
- Somatostatin analogs
- Antibiotics
Enteral Nutrition: Hydration

Fluids can be delivered through a feeding tube to help maintain hydration and/or the health of the GI tract

Enteral hydration has been shown to be effective in reducing PN volumes in consumers that are actively rehabilitating their intestine

Consumers that may benefit from enteral hydration include:

- Consumers that can maintain their body weight, but battle with recurrent dehydration
- Consumers unable to meet 100% of their hydration needs with their EN formula
- PN consumers unable to tolerate EN formulas
Indications to use parenteral nutrition in dysmotility

- Unable to obtain or maintain enteral access
- GI tract is non-functioning
Using EN and PN at the same time

Uses:

- To bridge a consumer that is transitioning off of PN onto EN
- To feed a functioning lower GI tract when unable to maintain nutritional status without PN
Transitioning from PN to EN

- Reduce PN volume/nutrients as EN intake increases
- Reduce PN infusion days (PN holiday)
- Reducing days of infusion per week
Case Studies
AC is a 46-year-old male with severe gastroparesis for the last three years, who has had gradual weight loss (84% of goal weight). AC has tried several medications to assist with improving his gastric emptying with little improvement. After meeting with a dietitian on several occasions, AC was placed on a liquid diet. After two weeks of trialing a liquid diet, AC was still having significant vomiting. Laboratory parameters suggested that AC was becoming dehydrated with mild electrolyte abnormalities. After discussion of the plan of care with his nutrition care team, it was determined that the dysmotility was only affecting his stomach and the remaining sections of his GI tract were functioning. Therefore, a trial of a nasojejunal feeding tube was recommended.
Case Study: Gastroparesis

1-month follow-up: AC was made NPO while his tolerance to the EN was being assessed. A continuous nighttime infusion of a polymeric formula was initiated.

2-month follow-up: AC was tolerating his EN at his goal rate over 12 hours at night. Since tolerance to his EN formula was established, AC started taking sips of liquids by mouth. He could tolerate up to $\frac{1}{2}$ c. of fluids every few hours without causing increased nausea and vomiting. It was decided to place a PEG-J feeding tube at this time.

3-month follow-up: AC has made significant improvements in his weight and he is now 95% of his goal weight. AC notes improvements in his chronic fatigue and is able to return to work. He is now able to take in small bites of low-fat, low fiber foods. His gastroenterologist is retrying several prokinetic agents at this time.
MP is a 26-year-old female with MNGIE syndrome with severe GI dysmotility, failure to thrive and loss of muscle mass. Because of the severe GI dysmotility and failure to thrive, MP has relied on PN for the last four years. Her goal is to reduce her PN infusion days to improve her sleeping habits and quality of life. Recently, she visited an intestinal rehabilitation center due to her complex GI case. After a full assessment of her GI tract, the clinical team suggested placing a nasogastric feeding tube to see if her GI tract could tolerate EN. A polymeric formula was selected for her first EN trial.
Case Study: Mitochondrial Disease

1-month follow-up:
MP tolerates 25% of her EN goals due to mild diarrhea and some nausea. It was decided to progress her feeding tube into the jejunum to see if tolerance would improve.

2-month follow-up:
MP tolerates 50% of her EN goals and her nausea was improved. She did have an increase in her diarrhea, so a soluble fiber supplement was started through her feeding tube. Weight gain was noted and her hydration status was excellent. MP’s PN formula was decreased to six days per week for two weeks and then to five days per week for two weeks. A long-term feeding tube was then placed.

3-month follow-up:
MP is able to maintain her weight on 50% EN and it was recommended to decrease her PN to 3 days per week. She was having some difficulty maintaining her hydration status on the days when she was not receiving PN so IVFs were sent to the home for the patient to use as needed. Her weight continues to be monitored and slow adjustments to her EN formula are made in effort to maximize the use of her GI tract. MP reports she is getting better sleep now that her PN frequency is reduced.
Summary

- Many nutrition support options are available for consumers with intestinal failure.

- Transitioning nutrition support takes time to determine tolerance to the nutrition support regimen.

- For complex cases, working with a team of clinicians that specialize in intestinal rehabilitation is critical.
ThriveRx’s Mission

ThriveRx’s mission is to optimize the nutritional well-being of our consumers through our customized approach, while maintaining the highest standards in service and clinical care. Our mission is fulfilled by our outstanding team, who put our consumers at the center of what we do and work towards improving the quality of their lives.

For more information on ThriveRx’s programs and services, call us at: 888-684-7483 or email us at info@thriverx.net
Upcoming Webinar

PEDiatric SBS DIet oVERview

Wednesday, Dec. 9, 2015 1:00–2:00 p.m. EST

Please join us to learn more about the best diet for children with short bowel syndrome (SBS), to maximize absorption and reduce the need for nutrition support.

Speaker: Jill Taliaferro, RD, CNSC, ThriveRx clinical nutritionist

To register for this webinar, or to view recordings of previous webinars, visit ThriveRx.net.

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