NURSING SKILL

Using a Gastric Feeding Tube for Continuous Feeding

Purpose

A gastric feeding tube, also known as a gastrostomy tube, is a flexible tube inserted through the abdominal wall into the stomach for the purpose of administering enteral nutrition, medication, and hydration to patients who have a functioning GI system but who are unable to meet their nutritional needs by oral ingestion or through the nasopharyngeal route.

Gastric feeding tubes may be placed if the need for nutritional support is anticipated to be greater than 4-6 weeks.

Red Flags

- Assess for contraindications to enteral feeding. [1, 2]
- Confirm gastric feeding tube placement before any liquids are instilled through tube, and verify tube placement was confirmed by radiographic imaging at time of initial placement. [2]
- Monitor for adverse effects that can occur in patients with gastric feeding tubes. [3]
- Use appropriate methods to prevent an enteral misconnection (errors such as connecting a feeding administration set to a tracheostomy tube, IV tube, or epidural tubing). [4, 5, 6]
- **Do not** mix medications directly into enteral nutrition formula because this will cause solution to thicken and obstruct feeding tube. It can also alter bioavailability, stability, or potency of drug and reduce nutritional value of enteral feeding. [3, 4]
- **Do not** tighten external bumper on tube to correct leakage because this can increase leakage by distorting insertion tract and cause necrosis by compressing internal bumper against skin. [7]

Procedure

SUPPLIES

- Nonsterile gloves
- Other personal protective equipment if you anticipate exposure to biohazards, such as bodily fluids and respiratory droplets/aerosols
- Pain assessment tool, facility-approved
- Stethoscope
- Protective barrier for patient, such as a towel or waterproof linen-saver pad
- Supplies for measuring pH including pH paper and medicine cup
- Sterile water for flushing gastric feeding tube for patients who are immunocompromised or critically ill
- Sterile water for reconstituting powdered formula
- Graduated container for measuring gastric residual volume
- Irrigation tray with 60-mL ENFit syringe
- Prescribed enteral nutrition formula
- Antiseptic swab to clean top of can/bottle of enteral nutrition formula if using an open system
- Administration set with ENFit devices/connectors and feeding pump
- Label for administration set
- IV pole
- Copy of treating clinician's order for enteral nutrition
- Oral care swabs moistened with mouthwash or soft toothbrush and toothpaste
- Lubricant for lips

PREPROCEDURE STEPS

1. Check care plan, treating clinician orders, and facility protocols on administering enteral nutrition and caring for a patient with a gastric feeding tube.
2. Review treating clinician orders for enteral nutrition. Also review orders for: [4, 8]
   - Lab tests, medications, or other treatments/procedures to be completed prior to initiating enteral nutrition
   - Any tests to be performed routinely
   - Patient monitoring parameters
3. Verify tube placement was confirmed with radiographic imaging at time of initial placement. [4]
4. Review patient's medical history/medical record for:
   - Indications for using gastric feeding tube for continuous feeding
   - Information about any hepatic, renal, pulmonary, or GI disorders that can affect enteral nutrition type and volume of water flush administered
   - Baseline and most current weight in kilograms
   - Intake and output records
   - Length of tube extending from stoma, which should be noted in patient's medical record at time initial placement of tube was confirmed
   - Medication use
   - Labs/other diagnostic test results
   - Allergies (use alternatives, as appropriate)
5. Follow standard preprocedure steps, as appropriate. [9, 10, 11]

PROCEDURE STEPS

1. Use standard aseptic nontouch technique. [12]
2. Position patient in bed for privacy, comfort, and accessibility.
3. Keep head of bed elevated to 30° or higher to reduce risk of aspiration of gastric contents. Consider using reverse Trendelenburg position if elevating head of bed is contraindicated. [4, 13]
4. Raise bed to a height that offers optimal access to enteral feeding tube and lower side rail.
5. Remove patient's gown/clothing as necessary and drape for privacy so only area around insertion site is exposed.
6. Place a towel or waterproof pad over patient and bedding to absorb any spills.
7. Perform hand hygiene. Put on nonsterile gloves.
8. Assess tube insertion site during daily cleaning of site for pain/tenderness, drainage, signs/symptoms of infection, edema, and skin irritation, erosion, or breakdown. Tube dressings are not necessary and are discouraged unless there is drainage. [13, 14]
9. Verify placement of gastric feeding tube every 4 hours and before administering any liquids, per facility protocol. [4, 13]
   - Determine if tube has migrated by noting any change in length of tube. Check numerical mark at exit site is consistent with documented numerical mark at time of initial insertion. [4, 15]
   - Confirm external bumper is correctly positioned, tube is securely anchored, and no increased tension has been placed on tube. [4, 15]
   - Assess color of gastric contents, which are typically clear, green, or brown but can appear curdled and off-white with green or brown sediment if patient is receiving continuous enteral nutrition. [4, 15]
   - Perform pH analysis of gastric contents, being aware enteral nutrition must be stopped for greater than or equal to 1 hour prior to pH analysis. A pH less than or equal to 5.5 is acceptable as an indicator the tube is in the stomach. [4, 15]
   - Contact treating clinician if tube placement cannot be verified and/or tube has migrated. Do not administer enteral nutrition.
10. Administer continuous enteral nutrition after confirmation of gastric feeding tube placement.

- Confirm enteral nutrition formula is correct and label container of enteral formula with patient's name, date and time of feeding, your initials, and any additional information required by facility protocol. [13, 16]
- Check expiration date and confirm integrity of enteral nutrition formula. [13, 16]
- Label tubing, "Tube Feed Only."
- Use only ENFit devices when administering enteral nutrition to prevent tubing misconnections between enteral feeding tubing and nonenteral tubing. [11]
- Administer formula at room temperature. [16]
- Shake enteral nutrition container and clean top of container with an antiseptic swab when using an open system to administer a manufacturer-prepared enteral nutrition formula. Open container and decant into feeding bag a volume of enteral nutrition formula that can be administered within 4 hours. [4, 13, 16]
- Reconstitute formula using sterile water when using an open system to administer a powder enteral nutrition formula. Decant into feeding bag a volume of prepared enteral nutrition formula that can be administered within 4 hours. Discard any remaining enteral nutrition that has not infused within 4 hours. [4, 13, 16]
- Spike enteral nutrition formal container with labeled administration tubing when using a closed system to administer enteral nutrition formula. [16]
- Hang bag onto IV pole. Open roller clamp and prime tubing with enteral nutrition formula. Close roller clamp. [13, 16]
- Thread tubing onto a feeding pump, if ordered. Closed systems are typically administered by feeding pump. [16]
- Trace tubing from point at which it will be connected to patient's tube to its point of origin to prevent misconnections, before connecting tubing. [4]
- Connect tubing to distal end of tube. Do not touch or contaminate connecting ends. [12, 13, 16]
- Use roller clamp to adjust to prescribed rate, when using gravity drip to administer enteral nutrition.
- Set pump to prescribed rate, when using a feeding pump to administer enteral nutrition, per manufacturer instructions. [13, 16]
- Closely monitor enteral nutrition infusion rate to ensure correct amount of enteral nutrition is being administered.
- Remove and discard gloves. Perform hand hygiene.
- Change open system and closed system containers/administration sets per manufacturer recommendations, which is typically every 24 hours. [4, 13, 16]

- Flush tube every 4 hours with a minimum of 30 mL of water during continuous feeding and whenever feeding is interrupted. Use sterile water for patients who are immunocompromised or critically ill.
- Monitor patient's position to ensure head of bed remains elevated at 30° or higher to reduce risk of aspiration. [4]

11. Assess for GI intolerance to enteral nutrition and for GI system dysfunction every 4 hours. [4, 13]
    - Auscultate bowel sounds over 4 abdominal quadrants.
    - Assess for nausea and vomiting.
    - Palpate abdomen and note any abdominal tenseness, distention, tenderness, or pain, and any other abnormalities that can preclude or necessitate modification of administration of enteral nutrition.
    - Assess for diarrhea, constipation, and flatus, and for frequency of bowel movements. [4, 13 17]
    - Check gastric residual volume, per facility protocol. Holding enteral nutrition for a gastric residual volume that is less than 500 mL when other signs of GI intolerance are not present should be avoided, per facility protocol. [4]
    - Initiate precautions to lower risk of aspiration if gastric residual volume is 200-500 mL, per facility protocol. [4]
12. Follow facility protocol or treating clinician orders to restore patency if tube becomes occluded.
    - Crush 1 tablet of pancreatic enzymes with one 325-mg sodium bicarbonate tablet in 5 mL of warm water. [4]
    - Instill into feeding tube and allow to dwell for 30 minutes. [2]
    - Irrigate tube at end of dwell time. [4]

PATIENT/FAMILY EDUCATION

- Teach patient/family about what to expect during use of a gastric feeding tube. Address any questions or concerns.
- Explain why tube is needed and how long it can be required.
- Reinforce importance of taking care when changing position so as not to dislodge tube.
- Teach about how to check tube placement, flush tube, unclog tube, prepare and administer enteral nutrition, position patient appropriately during feedings, operate infusion pump, and when to seek medical attention prior to discharge.

- Teach about how to identify and manage adverse effects of enteral nutrition feedings, including GI, metabolic, and mechanical adverse effects.
- Advise patient/family to seek medical attention for blood in aspirate, abdominal distention, vomiting, and other abnormal GI signs/symptoms, signs of tube occlusion (such as inability to administer enteral nutrition through tube), and signs of infection (including fever, reddened skin, and drainage).
- Provide contact information in event questions or concerns arise that warrant attention of treating clinician.
- Provide patient education resources, if available, to reinforce verbal education.

POSTPROCEDURE STEPS

1. Flush gastric feeding tube to maintain patency, as prescribed or required by facility protocol. [2]
2. Follow facility protocol or treating clinician orders to clear obstruction if tube becomes occluded.
3. Continue to monitor for GI intolerance to feedings.
4. Perform oral hygiene twice daily, or more often as needed or desired, using a soft toothbrush or swabs moistened with antiseptic mouthwash to promote comfort and reduce number of pathogens present in oral secretions.
5. Apply a water-soluble lubricant to patient's lips.
6. Support appropriate use and maintenance of tube so it remains in place, patent, and functional for duration of therapy.
7. Respond promptly to pump alarms.
8. Follow standard postprocedure steps, as appropriate. [9]

DOCUMENTATION

Update patient's plan of care and medical record, as appropriate. Include:

- Date/time of administration of enteral nutrition, including mode of delivery, volume administered, and rate of delivery
- Enteral nutrition formula, route, volume/rate, and time/frequency, and flush volume
- Flushing of gastric feeding tube, including type and volume of flush solution and notation about patency of tubing
- Measurement of gastric residual volume, including volume of gastric contents aspirated, information about appearance of contents, and confirmation contents were reinstilled and tube flushed
- Confirmation of tube placement, including method by which placement was confirmed and, if appropriate, length of tube extending from stoma, pH analysis, and color/consistency of gastric aspirate
- Any signs/symptoms of GI intolerance to enteral nutrition feedings
- Any unexpected patient events or outcomes, interventions performed, and whether treating clinician was notified
- Patient/family education, such as topics presented, response to education, plan for follow-up education, any communication barriers, and techniques that promoted successful communication

Care Considerations

- Gastric feeding tubes are constructed of silicone or polyurethane and range in size from 12 Fr to 30 Fr. They are internally stabilized with either an inflatable balloon or nonballoon "bumper," which are disc-shaped guards designed to secure the tube and prevent dislodgement and can be referred to as a dome, disc, bolster, or mushroom. The tubes also have external bumpers. [1, 2]
- Enteral nutrition has several advantages. [18]

Patient Outcomes

- The patient remains free of complications associated with administration of enteral nutrition through the gastric feeding tube.
- The patient receives enteral nutrition delivered safely through the gastric feeding tube, as prescribed.

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