Title: STANDARD GASTRIC RESIDUAL VOLUMES (GRV) PROTOCOL

Responsibility: Registered Nurse (RN)

Purpose: To assess tolerance of enteral feeding and minimize the potential for aspiration.

Specific Notes: High gastric residual volumes (GRV) increase the risk for pulmonary aspiration (the most severe complication of tube feedings).

Residual refers to the amount of fluid/contents that are in the stomach. Excess residual volume may indicate an obstruction or some other problem that must be corrected before tube feeding can be continued.

Continuous Feeding: Continuous drip feeding which may be delivered without interruption for an unlimited period of time each day.

Bolus Feeding: A set amount of feeding usually delivered four to eight times per day; each feeding lasting about 15 to 30 minutes.

Check GRV every 4 hours for continuous feedings or prior to bolus feedings (not applicable for tube feeding through Enteroflex or NJ/J-tubes).

Equipment:  
- 60ml oral syringe
- Graduated cylinder
- Water
- Clean gloves

Procedure  
1. Review physician order.
   The physician order will be individualized for each patient’s nutritional requirements.

2. Confirm patient’s identity with two patient identifiers.
   Using two patient identifiers will reduce the number of medical errors.

3. Educate patient and/or family on procedure.
   Focus on purpose and risk for aspiration.

4. Position patient in bed semi fowler’s (HOB 45-60 degrees) as tolerated.
   Patients on spinal precautions may be placed in reverse trendelenburg at 30–45° if no contraindication exists for that position.

5. Perform hand hygiene and don clean gloves.
   Patients with femoral lines can be elevated up to 30°.
**Procedure**

6. Connect 60 ml oral syringe to opening of gastric/nasogastric (NG) tube and gently aspirate gastric contents.

7. Flush tube with 30 ml water after the complete residual volume is obtained.

8. For a GRV < 250 ml: re-infuse aspirate, flush tube with 30 ml water, resume enteral feedings and continue checking residuals every 4 hours.

9. For a GRV > 250 ml: re-infuse 100 ml of aspirate, flush tube with 30 ml water, assess for physical signs of intolerance, HOLD enteral feeding for 1 hour and then recheck GRV.

10. If the GRV remains > 250 ml: notify physician to consider a promotility agent, restarting enteral feeding at 50% of previous rate (advancing to goal rate per physician order) and consider small bowel feeding tube and glycemic control.

11. If the GRV is < 250 ml: flush tube with 30 ml of water, restart tube feeding and continue checking residual every 4 hours.

12. For GRV > 500 ml: re-infuse 100 ml of aspirate, flush tube with 30 ml water, assess for physical signs of intolerance, evaluate for sedation, HOLD enteral feeding and notify physician to consider promotility agent.

13. Remove contaminated gloves, discard and wash hands.

**Point of Emphasis**

Use a new 60ml oral syringe daily.

Empty contents of syringe into a graduated cylinder if volume reaches 60 ml and repeat process until no further content is aspirated into syringe.

Make note of total gastric residual volume obtained.

Note total amount of intake (flushes and re-infusing of aspirate) administered.

**Physical signs of intolerance:** Abdominal distension/discomfort, Bloating/Fullness and/or Nausea/Vomiting.

Holding feeds for GRV < 500 ml, in the absence of other signs of intolerance should be avoided.

**Considerations/limitations:** location of feeding tube, viscosity of tube feeding formula, force (gravity vs. pump vs. syringe, etc.) when administering tube feedings, position of tip of feeding tube, frequent starts/stops and GRV check can contribute to ileus.

If GRV is consistently > 500 ml, consider small bowel feeding tube and glycemic control.

To prevent the spread of infection.
**Procedure**

14. Maintain elevation of patient’s head of bed as determined appropriate for the individual not only during feedings, but during all aspects of the patient’s daily routine.

Perform tube placement checks prior to bolus feedings or at least every 8 hours if continuous feeding.

Follow established protocol for administering tube feedings and competency-based training. (See Standard of Care and Practice L12 & L12a)

15. Document date, time, procedure performed, amount of residual obtained, description of residual, patient’s tolerance, and any signs/symptoms of intolerance observed (or absence thereof) in the patient’s medical record.

16. Document the total amount of intake (flushes and re-infusing of aspirate) and output for each GRV checked in the I&O section of the patient’s medical record.

**Point of Emphasis**

Risk factors most commonly associated with aspiration in tube-fed persons are:

- Depressed level of consciousness
- Impaired cough or gag reflex
- Inadequate gastric emptying
- Increased gastric residual volume
- Lying flat in bed
- Vomiting, regurgitation, reflux

Tubes can be dislodged or migrate

Written by: Michele Lovett, RD, LD, CNSC

Resource Person: 

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References:
