Nasogastric (Ryles) Tubes

There are separate articles on Enteral Feeding, Nutritional Support in Primary Care and Nutritional Support in Hospital.

A nasogastric tube is a narrow-bore tube passed into the stomach via the nose. It is used for short- or medium-term nutritional support, and also for aspiration of stomach contents - eg, for decompression of intestinal obstruction.

A wide-bore tube is used if drainage is needed; otherwise, a finer-bore tube is used. Fine-bore feeding tubes (gauge less than 9) cause less discomfort and less risk of rhinitis, pharyngitis or oesophageal erosion.

The use of a nasogastric tube is suitable for enteral feeding for up to six weeks. Polyurethane or silicone feeding tubes are unaffected by gastric acid and can therefore remain in the stomach for a longer period than PVC tubes, which can only be used for up to two weeks.

For long-term enteral feeding, the use of percutaneous endoscopic gastrostomy (PEG) is associated with improved survival, better tolerance by the patient and lower incidence of aspiration.

Feeding by nasogastric tubes\[1\]

- **Bolus:** by gravity - very simple, requiring minimal equipment but increases the risk of gastrointestinal symptoms.
- **Intermittently:** by gravity or pump - gives time free of feeding but increases the risk of gastrointestinal symptoms.
- **Continuously:** by pump system - reduces the rate of gastrointestinal symptoms but the patient is connected to the system most of the time and this may limit mobility.
- **Semi-recumbent positioning** of the patient reduces the risk of airway aspiration.
- Contamination of feeds can be minimised by minimal, meticulous handling and the use of closed rather than open systems.

Contra-indications

The nasogastric feeding route is not suitable for all patients, including those with:

- High risk of aspiration.
- Gastric stasis.
- Gastro-oesophageal reflux.
- Upper gastrointestinal stricture.
- Nasal injuries.
- Base of skull fractures.

Inserting a nasogastric tube\[2\]

- **Explain** the procedure and obtain consent.
- **Provide** a signal for the patient to stop the procedure.
- **Sit** the patient in a semi-upright position with the head supported with pillows and tilted neither backwards nor forwards.
- **Examine** the nostrils for deformity or obstructions to determine the best side for insertion.
- **Measure** the tubing from the bridge of the nose to the earlobe, then to the point halfway between the lower end of the sternum and the navel.
- **Mark** the measured length with a marker or note the distance.
- **Lubricate** 2-4 inches of tube with lubricant (eg, 2% Xylocaine®).
- **Pass** the tube via either nostril, past the pharynx, into the oesophagus and then into the stomach
- **Instruct** the patient to swallow and advance the tube as the patient swallows (sipping a glass of water helps).
- **If** resistance is met, rotate the tube slowly while advancing downwards. Do not force.
- **Stop** immediately and withdraw the tube if the patient becomes distressed, starts gasping or coughing, becomes cyanosed or if the tube coils in the mouth.
- **Advance** the tube until the mark is reached.
- **Check** the tube's position (see below).
- **Secure** the tube with tape.

Checking tube position

It is essential to confirm the position of the tube in the stomach by one of the following:

- **Testing pH of aspirate:** gastric placement is indicated by a pH of less than 4, but may increase to between pH 4-6 if the patient is receiving acid-inhibiting drugs. The use of blue litmus paper to check the acidity of aspirate is insufficiently sensitive to distinguish between levels of acidity.
- **X-rays:** will only confirm position at the time the X-ray is carried out. The tube may have moved by the time the patient has returned to the ward. In the absence of a positive aspirate test, where pH readings are more than 5.5, or in a patient who is unconscious or on a ventilator, an X-ray must be obtained to confirm the initial position of the nasogastric tube.
The old test of introducing a small quantity of air into the stomach and checking for a bubbling sound over the epigastrium is not recommended, as it is unreliable and can give false reassurance.

Securing and monitoring the tube

- Nasogastric tubes should be taped securely at the nose to avoid displacement.
- The tube should be flushed regularly to prevent the build-up of feed and medication leading to occlusion.
- The position of the tube should be monitored by recording the length of the tube at the point of exit from the nostril, regularly checking the pH of the aspirate, checking the nasal fixation tapes daily and checking for signs of respiratory discomfort or regurgitation.
- The tube position must be checked:
  - On initial placement.
  - At least once daily during continuous feeds, or before the administration of feed following a break or if bolus feeding.
  - Before the administration of drugs if the tube is not used for any other purpose.
  - After episodes of coughing, retching or vomiting.
  - After oropharyngeal suction.
  - Where there is any suspicion of a change in length of the visible part of the tube.
  - Where there is discomfort or reflux of feed into the throat.
  - If there are any signs of respiratory distress.
  - If the patient is transferred from one clinical area to another.

Medications

- Most medication is not licensed for administration through a nasogastric tube.
- A pharmacist should be consulted for advice as to the most appropriate preparation for administration through an enteral tube.

Further reading & references

- Nasogastric tube insertion
- Good Practice Guideline - Safe Insertion and Ongoing Care of Nasogastric (NG) Feeding Tubes in Adults; National Nurses Nutrition Group, 2016
- Administering Drugs via Enteral Feeding Tubes - a practical guide; British Association for Parenteral and Enteral Nutrition (BAPEN)

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