

CF Guidelines - Supplementary Enteral Feeding and Gastrostomies

Supplementary Enteral Feeding & Gastrostomy in CF:

Supplementary feeding via a gastrostomy or occasionally a nasogastric - NG - tube should be considered when there has been poor weight gain, or weight loss with a progressive fall off on the percentile charts in children or a drop in BMI in adults, despite following interventions - see table for regarding criteria for different stages of nutritional intervention - provided in the Nutritional & Oral Supplementation guideline.

Supplementary feeding should only be considered if all the methods below have failed:

- Multiple attempts to improve oral intake, including high calorie dietary advice and modification, plus trials of high energy supplements.
- Optimal control of respiratory disease. Control of malabsorption.
- Control of malabsorption.
- The exclusion of other medical conditions such as CF related diabetes or Pseudo-Bartters Syndrome.

The following test should also be undertaken:

- The appropriate screening test for diabetes.
- Urinary sodium levels.
- Serum electrolytes.
- Coeliac Screen, TTG and total IgA.

The aim of feeding is to boost the total energy intake and the overall nutritional intake to promote growth/weight gain. A number of studies have shown that overnight enteral feeding of malnourished CF patients improves nutritional status and improves, maintains or reduces the rate of decline in pulmonary function. The multi-disciplinary CF team should discuss each potential candidate before discussing the concept of home enteral feeding with the patient and family. Gastrostomy buttons are a method of choice for long term enteral feeding. Nasogastric - NG - feeding can be considered for short term feeding in acute illness, if the patient is unsuitable for gastrostomy or if the patient feels that a gastrostomy button is too permanent or invasive.

Patient Education:

- The patient and their family should be advised on the potential benefits of enteral feeding on growth, development, weight and pulmonary function.
- The patient and their family should be shown visual aids and examples of feeding tubes as appropriate.
- Questions from patients or their family should be encouraged.
- The CF patient and their family should be educated on how to tube feed whilst in hospital and their competency should be assessed by the dietician before discharge. Written information regarding the feeding regimen, the setting up of the feed and the feeding pump should be provided as well as contact telephone numbers. The patient should be discharged with the appropriate amount of feed, pump and giving sets to equip them until their home delivery.

Psychological issues:

- Although enteral feeding can improve the nutritional status in patients with feeding problems it does not solve the underlying issue and ongoing psychological and dietetic needs to be offered.

- Body image problems can be a concern in patients who prefer to be slim, as can a visible permanent appliance.

Siting of Gastrostomy Tube:

- Tubes are usually sited endoscopically under sedation or under general anaesthetic. Patients health should be optimised before the procedure. This may require hospitalisation prior to the procedure to receive physiotherapy and antibiotics.
- Patients initially have a traditional gastrostomy tube placed, this is left for 6 weeks in order for the stoma to be well established. The gastrostomy tube can be replaced by a button.

Post Gastrostomy Care:

- Abdominal muscles tend to be well developed in CF patients - as a result of coughing and physiotherapy - and CF patients may experience considerable pain for a few days post gastrostomy insertion and analgesia should be prescribed as appropriate.
- The site should be kept clean and dry and open to the air, the tube should be rotated as advised by the manufacturer and flushed with water before and after each food.
- Oozing PEG sites should be swabbed and cultured with topical antimicrobial therapy prescribed as appropriate - refer to local gastrostomy guideline.

Replacement of Gastrostomy Tube with a Button:

- An appointment should be made with the endoscopy department to replace the gastrostomy tube with a button feeding device when the stoma is established. The patient should be educated on the care of the button, regarding rotating the device and checking of the water in the balloon.
- Normally the button device will last between 3 and 6 months before it needs replacing. The patient should be issued with a replacement button or gastrostomy tube and advised on the course of action if the tube should become displaced.

Nasogastric feeding:

Some patients can be trained to pass the tubes on a nightly basis, others may keep the tube in for weeks at a time. The patient/family need to be shown how to check the correct position of the tube and assessed as competent before discharge. Coughing can displace the tube and swallowing the enzymes can be difficult for some patients.

Commencing feeding:

Feeding can be commenced within 24 hours of gastrostomy placement, providing the procedure has been uncomplicated, or immediately following the correct placement of an NG tube - as directed locally.

Choice of feed and regimen:

Feeds are either elemental - hydrolyzed protein - or polymeric - whole protein - in nature. The choice of feed depends on the individual patients nutritional, social and lifestyle needs. The volume - in some cases the concentration - of feed should be adjusted to suit the individual requirements, tolerance and oral intake. The CF dietician should advise on the choice of feed.

Elemental feeds:

Emsogen - this is a powdered medium chain triglyceride (MGT) feed which can be concentrated to 2.5kcal/ml. This requires reconstituting by the addition of cooled boiled water. Up to 83% of fat is MCT, so the dose of pancreatic enzymes can usually be reduced with close monitoring of abdominal symptoms and stool output. The feed must be introduced slowly and tolerance problems can occur because of the high osmolality.

Semi-elemental:

Survimed OPD (Fresenius Kabi) has a concentration of 1.0kcal/ml and is ready to hang. The advantage of semi-elemental feeds is that they come in a ready to feed composition and due to the high proportion of MCT fat they require fewer enzymes. They should be introduced slowly due to the risk of osmotic diarrhoea.

Whole protein feeds:

Note that there are a wide range on the market. Fresenius Kabifeeds have been listed as they have the enteral feeding contract for the South West until 2015 and hence standard feeds from their range have been quoted.

Reconstituted feeds:

These are reconstituted and many come in a ready to hang presentation, thence they do not require preparation and the closed system reduces the risk of infection and bacterial contamination. They do however require the use of pancreatic enzymes.

Feeding Amounts:

- Paediatric Feeds - 8kg - 30kg or 1 - 10 years of age:
 - Frebini Original - 1kcal/ml
 - Frebini Energy - 1.5kcal/ml

- Adults Feeds - > 20kg:
 - Osmolite - 1kcal/ml
 - Ensure Plus - 1.5kcal/ml
 - 2Kcal HN - 2kcal/ml

Enzymes with overnight feeding:

The dietician should advise on the enzyme dose. The dose should be split with half/two thirds of the dose taken before and the remainder taken after the feed. Note - it is not acceptable to wake patients up during the night take enzymes. Enzymes should not be put down the tube.

Supply of feeds and equipment:

The South West has a contract with the 'Fresenius Kabi Homecare' to deliver feed and ancillaries to the patients home. The dietician will register the patient with the service and contact the GP for a regular prescription for the feed unless the hospital has an 'off script' arrangement.

Ongoing monitoring:

- The patient should receive regular dietetic reviews and the feed should be adjusted accordingly to meet both nutritional and life style requirements.
- Careful monitoring of blood sugars should be undertaken by a patient with CF

related diabetes - C.F.R.D - and the insulin regimen adjusted accordingly.

- Random blood sugars should also be monitored in the patient with out a diagnosis of C.F.R.D, as overnight enteral feeding can unmask C.F.R.D.

References:

- 1, CF Trust Standards For Nutritional Care, 2002
- 2, Clinical Guidelines: Care of Children with Cystic Fibrosis, 2007. Royal Brompton and Harefield Trust.
- 3, Cystic Fibrosis Care - A Practical Guide. Peebles et al, 2005. Churchill Livingstone.

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