

'My Practice'

Post-haemorrhagic stroke management: clinical and practical considerations for enteral feeding

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Background

Fred*, an 86 year old man, was admitted to hospital with right-sided weakness, expressive dysphasia, dysphagia and confusion. He lived in a bungalow with his wife and had 3 daughters. He had a previous medical history of short term memory loss, but no diagnosis of cognitive impairment. On admission to hospital Fred was given a CT scan and chest x-ray, subsequently he was diagnosed with a left-middle cerebral artery stroke and aspiration pneumonia. In view of his dysphagia he was referred to a speech and language therapist (SLT) for a swallow assessment.

Initial Assessment

On admission, Fred's weight was 97.5kg (BMI 28.2kg/m²). The dietitian estimated his daily nutritional requirements as 2520kcal (basal metabolic rate + 25% stress factor for haemorrhagic stroke + 25% activity factor for mobility on the ward), 109g protein (1.25g/kg due to his hypermetabolic state) and 2625ml fluid (30ml/kg)¹. The SLT assessment confirmed Fred was at high risk of aspiration due to an unsafe swallow at all consistencies, so he was made nil by mouth (NBM). Short term enteral feeding with a nasogastric (NG) tube was indicated to provide a safe source of nutrition for Fred, whilst waiting to see if his swallow function improved. An NG tube was inserted and Fred was referred to the dietitian with the goal to keep his weight stable and initiate a more long-term feeding regimen.

Dietetic Management

Fred therefore received 1600ml of Nutrison Energy Multi Fibre (2448kcal, 96g protein and 24g fibre) over 16 hours with additional 200ml water flushes 4 times a day. The fibre-containing feed was chosen to help maintain regular bowel movements as Fred was prone to constipation.

He tolerated the feed well but in his confused state secondary to his stroke, Fred repeatedly pulled his NG tube out, resulting in interruptions and delays in the delivery of his feed. Consequently, Fred's weight dropped to 83.8kg (BMI 27kg/m²) within the month that followed.

Fred remained in hospital; he wasn't able to follow basic commands and struggled to communicate. He also couldn't understand and retain information provided about his treatments. In view of the likely longevity of Fred's condition, the doctors held a best interests meeting with the multidisciplinary team and his wife to discuss longer term enteral feeding options. The decision for placement of a percutaneous endoscopic gastrostomy (PEG) was made in Fred's best interests and this was placed a month later.

The dietitian discussed long-term feeding plans with Fred's wife, who reported she would prefer administering bolus feeds so that Fred's intake could resemble meal times. Fred's feeding regimen was therefore changed to 8x125ml

Fortisip Compact bolus feeds each day plus additional water flushes to provide 2400kcal, 96g protein and 2240ml fluid. Fred tolerated this change well and met his nutritional requirements more consistently with his PEG, which enabled him to gain weight back to his admission weight over the following month (87.kg, BMI 28.1kg/m²). Fred's level of awareness gradually improved during this time but his mobility and dexterity deteriorated and his pharyngeal weakness persisted.

As such, after 13 weeks in hospital, Fred was discharged home with a care package including 4 carer visits each day, and remained NBM with his PEG feeding regimen as his sole source of nutrition. The carers were not trained to use the PEG, so prior to discharge Fred's wife was trained by the ward nurses on tube care to enable her to manage this at home. Fred's care was transferred to the home enteral feeding (HEF) team.

Community Review

Within a week of his hospital discharge, the HEF team reviewed Fred's care plan in telephone consultation with his wife. She reported that she could not keep up with the frequency of bolus feeds which Fred required and was keen to be trained on pump feeding for a continuous feeding regimen. In addition, she reported that Fred was

Nutrison Energy Multi Fibre is a Food for Special Medical Purposes for the dietary management of disease related malnutrition in patients with higher energy needs and must be used under medical supervision.

Fortisip Compact is a Food for Special Medical Purposes for the dietary management of disease related malnutrition and must be used under medical supervision.

constipated and opening his bowels only every other day.

The dietitian contacted the local Nutricia Homeward Enteral Nurse Specialist who was able to visit Fred and his wife at short notice to train Fred's wife on how to use the Flocare Infinity pump. The dietitian also reviewed Fred's clinical condition and requirements to consider the most appropriate feeding regimen. Fred's current feeding regimen was not meeting his requirements for protein, so a high protein feed was indicated. In addition, the dietitian felt that overnight feeding may be the most appropriate continuous feeding option for Fred in order to minimise the impact of enteral feeding on his daily routine.

The dietitian therefore adjusted Fred's regimen to include 500ml Nutrison Advanced Protison at 165ml/hour for 3 hours before bed and 1000ml Nutrison Energy at 100ml/hour for 10 hours overnight. This provided 2140kcal, 97.5g protein (1.1g/kg) and 7.5g fibre, which was much closer to Fred's protein requirement and provided a small increase in fibre which the dietitian anticipated would improve his bowel function, with the option to include Nutrison Energy Multi Fibre in his regimen in future if a higher fibre intake was indicated.

Outcomes

Fred was reviewed by the HEF dietitian one month later. Fred's wife reported that Fred had tolerated the change to his regimen very well. His bowels had improved and were opening every day, and he remained generally well on the continuous pump feeding regimen. In addition, Fred's wife had become more confident in managing Fred's PEG care and feeding and reported that continuous pump feeding was much less stressful to manage by herself than his previous bolus feeding regimen.

Discussion

Protein

Adequate protein intake has become an increasing focus in clinical nutrition throughout the last few years, with estimated requirements now being higher than previously anticipated. The ageing population and the impact of chronic long-term conditions on nutritional status have been recognised by ESPEN (2014)² and the PROT-AGE study (2013)³ as key factors in the drive to consider higher protein requirements. Research has established that high protein medical nutrition may help patients with a range of clinical conditions to achieve improved clinical and nutritional outcomes, including increased handgrip strength which may be an indicator for physical function⁴ and which is commonly affected after stroke.

Fred's physical strength and mobility declined during his hospital admission and after several months he was completely wheelchair dependent. This meant Fred may have been at increased risk of developing pressure sores, which can cause pain, distress, increased mortality, extended hospital stays and reduced quality of life⁵. High protein formulas have been shown to reduce incidence and improve healing of pressure ulcers and wounds⁶. A meta-analysis by Stratton et al⁶, states that the prevalence of pressure ulcers can be up to 66% in hospital and 54% in the community. It was therefore important to meet Fred's protein requirements to reduce the risk of pressure ulcers and promote functional recovery³. Four months after receiving a high protein feeding regimen alongside regular physiotherapy, Fred's family reported his strength was improving.

Considering patient and carer perspectives for PEG feeding

Following a PEG insertion, patients may experience depression and stress, partly due to their underlying

disease, but also perhaps due to undergoing such a dramatic life change following the procedure⁷. The effect of a PEG on carers and family members, although significant, may be less apparent. Rickman⁷ found that high levels of stress are experienced by PEG-patients' relatives, often due to the unfamiliarity of managing a PEG. Difficulties can arise as a consequence of the patient suffering functional and/or mental debilitations or changes⁷ secondary to their underlying condition. Research has unearthed themes of feeling guilty about being able to eat while the patient could not; inadequate discharge training; feeling ill-equipped to complete PEG care and the need for time to feel comfortable to manage the PEG⁸.

To establish practical and realistic feeding regimens, these are important points to consider. In Gloucestershire, the HEF team aims to see new HEF patients within 15 working days after discharge in line with NICE guidelines⁹, which may help to alleviate some of the concerns of the patient, their family or carers and manage any early issues which may have arisen with the home enteral feeding regimen.

Indeed, in Fred's case bolus feeding was initiated in hospital to be more 'normalised' and flexible for him on discharge, however this regimen was not feasible in practice. There are many factors to take into account when considering bolus feeding. These include whether carers can commit to timings and frequency required for bolus feeding, whether the patient will feel full and uncomfortable from large or frequent bolus feeds and finally, whether the patients or carers' dexterity allows frequent use of the syringe¹⁰. Discussion about these factors and appropriate monitoring of a feeding regimen is important to ensure that

Nutrison Advanced Protison is a Food for Special Medical Purposes for the dietary management of disease related malnutrition in metabolically stressed patients and must be used under medical supervision.

Nutrison Energy is a Food for Special Medical Purposes for the dietary management of disease related malnutrition in patients with higher energy needs and must be used under medical supervision.

enteral feeding remains manageable and effective.

Conclusion

Fred's case highlights the clinical and practical complexities of enteral feeding after a stroke, including the importance of meeting high protein requirements and establishing appropriate and practical feeding methods to suit the lifestyle of the patient and their carers. Long-term enteral feeding via PEG with a combined regimen of Nutrison Energy and Nutrison Advanced Protison enabled Fred to consistently meet his nutritional requirements to maintain an adequate nutritional status, in a regimen suited to meet the needs of him and his family.

*Fictitious name.

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