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The transition from blenderized tube feeding to medical nutrition therapy in the adult patient with spastic dystonia*

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ABSTRACT

The popularity of blenderized tube feeding continues to increase due to patient and caregiver demand. However, the evidence for blenderized tube feeding is limited, particularly for its effectiveness and safety in long-term use. This case study, the transition process from blenderized tube feeding to medical nutrition therapy with commercial enteral formula in an adult patient with spastic dystonia. The patient was a 27-year-old male who was admitted to the neurology service. The patient, who had been on a long period of blenderized tube feeding, was malnourished when the nutritional status was assessed. The patient who was resistant to nutrition regimen changes was administered medical nutrition therapy, which included a commercial enteral formula with a gradual increase in dose, with a monitoring protocol for approximately three months. This case report discusses and applies the provision of individualized medical nutrition therapy in conjunction with appropriate decision-making by the nutrition support team for the nutritional management of an adult patient with a history of long-term blenderized tube feeding. Further research is needed to determine the indications, contraindications and treatment protocols for blenderized tube feeding.

Keywords: blenderized tube feeding, nutritional status, medical nutrition therapy, spastic dystonia

INTRODUCTION

Commercial enteral formulas have been widely available for more than 30 years and are the predominant tube feeding regimen recommended by healthcare professionals, but interest and use of blenderized tube feeding has increased in recent years, largely due to patient and caregiver demand.[1] However, there are very few data on long-term blenderized tube feeding, and the questions of ''whom, when, how much and how long?'' questions are still unclear. There is evidence of reduced gastrointestinal symptoms and improved psychosocial aspects of feeding with blenderized tube feeding.[2-4] Concerns about blenderized formulas include the risk of microbial contamination if clean preparation techniques are not used and subsequent infection, unknown or inconsistent nutrient composition, and tube clogging due to high viscosity. These concerns are exacerbated by the fact that many caregivers lack the healthcare and sociocultural support needed to prepare complete nutritional formulas.[5,6] Although the limitations of the studies in the literature are taken into account, the evidence for positive outcomes of blenderized tube feeding has increased, especially in recent years.[7-9] Brown et al.[10] reported a conceptual decision model that a healthcare professional could use to determine whether a blenderized tube feeding is contraindicated. According to this model, blenderized tube feeding is contraindicated in high-risk diagnoses/conditions such as malnutrition or malnutrition risk, head and neck cancer, gastrointestinal

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cancer, malabsorptive diseases, and critical care. In this case study, we present a patient with spastic dystonia who was malnutrition with a blenderized tube feeding for a long time.

CASE PRESENTATION

A 27-year-old male patient with a diagnosis of spastic dystonia for 16 years who was immobile, underwent percutaneous endoscopic gastrostomy (PEG) and home mechanical ventilation support, was admitted to the neurology service. Ten years ago, the patient, who had been in the intensive care for about five months due to infection and general deterioration, was started on blenderized tube after being discharged from the intensive care unit at the request of his parents. According to the statements of his parents, the patient experienced severe nausea and vomiting after consumption of commercial enteral formula, these symptoms decreased significantly after using blenderized food. In addition, parents reported that they were more satisfied with blenderized tube feeding. When asked which blenderized foods the patient was fed at home before admission to the hospital, the parents reported that they fed the patients all the foods they consumed themselves (soup, meal, dessert, etc.) in blenderized form. Although the patient's parents had been tube feeding for a long time and had taken every precaution to avoid complications such as contamination and tube blockage, the patient's medical history showed recurrent infections. The patient had a body weight of 65 kg and a body mass index of 25.3 kg/m^2 and was diagnosed with Stage-2 malnutrition based on GLIM criteria at the first assessment of nutritional status. When the patient's general condition was good and there were no severe contractions, he was fed with blenderized foods via oral and PEG, while he was fed by PEG when his contractions become severe. When the primary physician requested the first consultation with the nutrition support team, the patient had been in hospital for about fifteen days and was receiving homemade, blended food via PEG, bolus feeding. As a result of the nutrition-focused physical examination findings, the patient did not have pressure injuries, had decreased body weight in the last three months, lost subcutaneous adipose tissue, reduced muscle mass and has been constipated for one week. The patient's energy and protein requirements were estimated to be approximately 1890 kcal/d (using Harris-Benedict equation, mobile in bed and patient without stress factor) and 78 g/d (1.2 g/kg actual body weight), respectively. Analysis of the patient's 24-hour dietary recall showed that the patient was able to meet approximately half of his energy and protein requirements with blenderized foods such as minced meat soup, fruit/vegetable juice, biscuits and yoghurt. As the patient's parents were resistant to the use of commercial enteral nutrition formula, the nutritional treatment was planned so that 1/3 of the patient's energy and protein requirements would come from the izocaloric enteral formula and 2/3 from the blenderized tube feeding of prepared in the hospital kitchen. The blenderized food was prepared in accordance with standard hygiene and contamination rules and delivered as a meal at the scheduled time of consumption. Also, antiemetic treatment was started. The patient was followed up with weekly visits and the dose of commercial enteral formula was gradually increased to an average of 10-20% at each visit. The patient's energy and protein intake from blenderized food prepared in the hospital kitchen was calculated at each visit using the plate diagram sheet. The patient was discharged home from the ward after a total of 10 visits and was not found to be malnourished according to GLIM criteria. The patient was able to meet all energy and nutritional requirements with medical nutrition therapy and did not experience any gastrointestinal symptoms. The patient did not have any electrolyte imbalance during this period. As the patient will continue to consume blenderized foods as required by patient and his parents during the discharge process, nutrition education was provided on appropriate preparation protocols, hygiene, and sterilization, as blended foods do not form the basis of the diet.

Main Points

- There is no consensus on which patients' blenderized tube feeding can be used, but it is inappropriate for use in patients with malnutrition.
- Considering the demands of patients and parents and establishing effective communication may be beneficial in providing appropriate medical nutrition therapy to resistant patients.
- Dietitians are essential members of the nutrition support team and lead the way in making appropriate decisions for the nutritional management of patients throughout the process of individualized medical nutrition therapy.

DISCUSSION

This case study highlights several points. In previous hospital experiences of this case, the healthcare professionals despite the patient's gastrointestinal symptoms maintained a nutrition plan that included standard/routine commercial enteral formula rather than patient-specific solutions. This situation led to the family deciding on their own nutrition regimen and resisting the involvement of healthcare professionals in this process. Unfortunately, many patients and parents do not seek support for a variety of reasons, including the inability of health professionals other than dietitians to meet their needs, lack of dietitian consultation, or inadequate

practice of patient-specific medical nutrition therapy. As this case was diagnosed with malnutrition, had frequent constipation, and was meeting approximately 60-70% of his energy and protein requirements, the hospital's nutrition support team planned to transition from blenderized food to commercial enteral formula. However, the parents who had been feeding their son with a blenderized tube feeding for about ten years were not willing to change the patient's nutritional regimen. Then, the parents were convinced after it was explained that the patient's entire would be prepared under the supervision of the nutritional support team, with a step-by-step nutritional therapy protocol and monitoring. Anthropometric measurements such as upper mid-arm circumference and skinfold thickness were not assessed by the nutrition support team because our patient avoided close contact. Therefore, for the patient's confidence and comfort, these assessments were not recorded in the follow-up of medical nutrition therapy.

Regarding contamination concerns, it is emphasized that these can be addressed through safe food handling, appropriate hygiene measures and guidelines for the preparation, storage and handling of blenderized tube feeding.[11,12] The parents in this case had correct information about the food preparation process and were seen to follow the recommendations. However, particularly during the hospitalization period, the process of preparing to blenderized food from home was challenging and the offer from the nutrition support team to prepare blenderized food in the hospital kitchen significantly reduced their care burden. The inadequate nutrient density of blenderized foods is another negative aspect of this situation[13] and the role of the dietician in the preparation of blenderized tube feeds is therefore crucial. In this case, the patient's daily energy and nutrient requirements were achieved by preparing blenderized tube feeding from dietician recipes and simultaneously using commercial enteral formulas. To date, a few systematic reviews have been conducted on blenderized tube feeding use in adults.[12,14] Data on blenderized tube feeding in adults are sparse and limited to small study populations, short observation periods and specific disease states. Therefore, there is insufficient data available to assess the clinical utility of blenderized tube feeding. The most recent guideline from the European Society for Clinical Nutrition and Metabolism does not recommend the use of blenderized formulas in patients receiving enteral nutrition at home, as blenderized formulas are less effective and safer than commercial formulas.[15] In this case, the patient followed an individualized medical nutrition therapy, taking into account the beliefs, demands of the patient and parents and scientific evidence, and continued her current treatment at home.

CONCLUSION

Although the malnourished patient and their parents, who had been receiving blenderized tube feeding for a long time, were resistant to the nutrition regimen, targeted medical nutrition therapy was achieved. Dietitians are key members of the nutrition support team and, in addition to providing individualized medical nutrition therapy, take the lead in making appropriate decisions about the nutritional management of patients at every stage of the treatment process.

Informed consent: Written informed consent was obtained from all patients who participated in this study.

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