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RESEARCH ARTICLE

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Nutrient dense cereal pulse mix for enteral feeding

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ABSTRACT

The aim of this paper is to analyse nutrient composition and selected quality parameters like viscosity, osmolality, and caloric density of an easily reconstitutable nutrient dense mix used for enteral feeding. Simple indigenous technology using natural ingredients was employed for formulating the mix. Quantitative analysis of both the macro and micro-nutrients was carried out and it was found that 100g of the formula provided 385 kcal and 39.53 g of protein. 30 g of flour after reconstitution with milk provided 428 kcal and 19.8 g of protein. The viscosity of the enteral feeds in one per cent solution was reported to be 250 centiposes as against recommended 60 centiposes for commercial formulas. The osmolality was found to be 339 mOsmol/kg, which was within the recommended range of osmolality (270-770 mOsmol/kg) for enteral feeding. The caloric density of the formula was 0.82kcal/ml. These preparations would provide nutritional support at relatively lower cost compared with commercial formulations for varied clinical conditions without compromising quality. These mixes would be beneficial for enteral feeding in developing countries as a viable alternative for commercial formulations, which tend to be expensive.

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Key words : Nutrient dense, Cereal pulse mix, Nutrient composition, Caloric density

INTRODUCTION

Malnutrition is prevalent to a higher degree among hospitalized patients throughout the world (Torosian, 1999). As many as 40% of adult patients are seriously malnourished at their hospital admission and two thirds of all patients experience deterioration of their nutritional status during their hospital stay.

A nutritionist's role in the hospital is to formulate the most appropriate nutritional therapy for each patient based on their nutritional status. There are varied nutritional intervention strategies to choose from which includes natural foods, nutritional supplements, enteral tube feeding and partial or total parenteral nutrition. In situations, where oral intake is not possible and the gastrointestinal tract is functioning, nutrients can be provided via feeding tubes placed into the alimentary tract. Enteral nutrition by tube has been used since the late 1800's. For years enteral formulae were prepared using foodstuffs, vitamin and mineral preparations and a blender. Today an extensive variety of commercially prepared formulae are used. Some formulae are nutritionally complete, some are formulated for specific diseases or conditions, and others (modular) provide specific nutrients to supplement a diet or other formulae (Grodner, 2007)

Commercial, ready-to-use formulae have been available for over 20 years and they are the most preferred formulae for enteral nutrition support in developed countries (Tanchoco, 1990). Studies have documented that commercial formulae have uniform contents and are associated with less mechanical complication such as tube clogging, it is prepared in an aseptic environment and are sterile which greatly reduces the risk of gastrointestinal complications such as diarrhea, abdominal distention and constipation and it is cost effective in terms of overall management and recovery of the patients (Sullivan, 2001).

Home based intact polymeric formulae have been assumed to be inferior to commercial formulae. Using simple indigenous technologies easily reconstitutable home based nutrient dense mixes containing natural food ingredients are now being developed in developing countries for enteral feeding. These mixes are prepared