CALORICALLY DENSE NUTRITIONAL COMPOSITION

BACKGROUND OF THE INVENTION

The present invention relates generally to the treatment and nutritional support of patients. More specifically, the present invention relates to compositions for use in metabolically stressed patients who need food restriction, but who do not necessarily need increased contents of protein or special nutrients.

Patients suffering from a loss of nutrients require adequate nutritional support. A lack of adequate nutritional support can result in malnutrition associated complications. Thus, the goal of nutritional support is to maintain body mass, provide nitrogen and energy in adequate amounts to support healing, meet metabolic demands characterized by the degree of stress, and support immune function.

A traditional form of nutritional support is administering whole protein liquid feedings to the patient to remedy the protein deficiency. However, some patients requiring nutritional support have a compromised absorptive capacity and thus cannot tolerate whole protein liquid feedings as well as the long-chain fatty acids and complex carbohydrates often present in such whole protein feedings. Many diseases or their consequences can cause malabsorption by impairment of either digestion or absorption. For instance, patients suffering from various types of inflammatory bowel diseases typically cannot tolerate whole protein feedings. As a result, semi-elemental and elemental protein diets were developed to treat such compromised patients.

However, in addition to the traditional inflammatory bowel type patients, semi-elemental and elemental protein diets are currently being used in other patient segments. Specific conditions where these diets are being used include, for example, total parenteral nutrition patients receiving early transitional feedings, acutely ill, and catabolic patients with increased nitrogen needs yet requiring an elemental diet.

Still further, many patients suffering from metabolic stress have a significant need for increased energy but often do not need or tolerate protein levels beyond the normal requirement. Such patients also cannot tolerate the food volume necessary to deliver the energy they need. As a result, such patients need an elemental diet that provides calorically dense nutritional support while at the same time providing moderate non-protein calories per gram of nitrogen. Although a variety of elemental and semi-elemental diets are currently being used in an attempt to treat and/or provide nutritional requirements to such patients, the inventors of the present invention do not believe the needs of the metabolic stressed patients are being adequately met.

Accordingly, a need exists for an enteral nutritional formulation that meets the nutrient requirements of metabolically stressed patients without unnecessarily subjecting such patients to high fluid volume treatments or formulations with increased protein levels.

SUMMARY OF THE INVENTION

The present invention provides a nutritional composition designed for metabolically stressed patients. To this end, the present invention provides nutritional support with formulations containing increased caloric density without elevated protein levels or excess fluid.

Pursuant to the present invention, an enteral composition includes a protein source comprising approximately 15% to 20% of the caloric distribution of the composition; a carbohydrate source; and a lipid source including a mixture of medium and long chain triglycerides. Significantly however, the enteral composition, unlike prior compositions, has a caloric density of at least approximately 1.4 kcal/mL.

In an embodiment, the hydrolyzed protein source is essentially 100% hydrolyzed whey protein.

In another embodiment, the lipid source of the composition includes at least 70% medium chain triglycerides.

Still further, in another embodiment, the enteral composition of the present invention uniquely provides calorically dense nutritional support while at the same time providing moderate non-protein calories per gram nitrogen (NPC/gN). Specifically, the present invention uniquely provides an enteral composition having a clinically acceptable ratio of non-protein calories per gram nitrogen of at least approximately 90:1; for example about 140:1 to about 100:1.

Moreover, due to the calorically dense nature of the composition of the present invention, the composition includes 100% of U.S. RDA of vitamins and minerals in approximately 1500 kcal (1000 mL).

The present invention also provides a method for providing nutrition to a metabolically stressed patient. The method includes administering to the patient a therapeutically effective amount of a composition having a caloric density of at least approximately 1.4 kcal/mL. The composition with such increased caloric density includes a protein source comprising approximately 15% to 20% of the calorie distribution of the composition, a carbohydrate source, and a lipid source including a mixture of medium and long chain triglycerides.

An advantage of the present invention is that it provides a nutritional composition that is ready-to-use, nutritionally complete, and contains proteins, lipids, vitamins and minerals in proportions suitable for older children (10+ years) and adults.

Moreover, an advantage of the present invention is that it provides a nutritional diet for tube as well as oral use designed for optimal tolerance and absorption in metabolically stressed patients.

Another advantage of the present invention is that it provides a composition containing hydrolyzed whey protein, medium chain triglycerides and maltodextrin to enhance absorption in metabolically stressed patients.

Yet another advantage of the present invention is that it provides calorically dense nutritional support in the form of an elemental diet while at the same time providing a moderate NPC/gN ratio (non-protein calories per gram nitrogen) of greater than at least approximately 90:1; for example about 140:1 to about 100:1.

Still further, an advantage of the present invention is the high caloric density will be especially useful for patients using the composition as a supplement (i.e. HIV, cystic fibrosis) and as a nocturnal feeding (cystic fibrosis).

Additional features and advantages of the present invention are described in, and will be apparent from, the detailed description of the presently preferred embodiments.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

Nutritional support of hospitalized as well as non-hospitalized patients requires prevention, recognition and treatment of nutritional depletion that may occur with illness. The goals of nutritional support include stabilizing metabolic state, maintaining body mass, and/or facilitating growth in the presence of disease and gastrointestinal dysfunction.