

Malnutrition in children from Malawi

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Aim: The objective is to test the effectiveness of two supplementary foods in the treatment of moderate acute malnutrition (MAM).

Description:

Worldwide, 10.2% of deaths among children under five years of age have wasting or moderate acute malnutrition (MAM) as an important underlying cause of death. Children with MAM, defined as a weight-for-height Z-score (WHZ) between -2 and -3, experience an increased number of infectious diseases, delayed cognitive development, and decreased adult stature and productivity.

Since the 2007 joint statement recommending the use of ready-to-use therapeutic food (RUTF) for the treatment of severe acute malnutrition, similar peanut paste-based ready-to-use supplementary foods (RUSF) have been developed which are effective in the treatment of MAM. RUSF are not conducive to the growth of bacteria because of their low moisture content, do not require cooking, and have led to greater recovery rates than fortified blended flours like corn-soy blend (CSB) in direct comparisons.

Previous work by the PI has shown that soy RUSF and soy/whey RUSF are successful in treating MAM in a clinical trials.^{14,35} Recovery rates using soy and soy/whey RSUF were 88% for both foods, weight gain was 3.4 ± 2.6 and 3.6 ± 2.8 g/kg*d, respectively, and time to recovery was 23 days for both.³⁵

The whey and whey protein markets are growing globally. Whey is the by-product of cheese manufacturing and the various products produced from whey have many functional attributes. After isolation of the valuable whey proteins from the cheese whey stream, whey permeate remains. After drying, this product is high in lactose and minerals, and it is currently marketed as a sweet bulking and browning agent, flavour enhancer and mild milk flavour provider. Due to its high mineral content, whey permeate can be used in RUSF to partially replace some of the added minerals in the micronutrient premix ingredient. With the addition of <5% whey protein concentrate (WPC), the protein nutrition of the RUSF meets the WHO supplementary food recommendations. Also, in a dairy-based RUSF, use of whey permeate and WPC is more cost-effective than use of non-fat dry milk (NFDM), which is currently used in RUTF.

In this prospective, double-blinded, randomised controlled clinical effectiveness trial, we will compare two RUSF products in the treatment of MAM to test the hypothesis that the proportion of children who recover will differ by no more than 3%.