Acceptability of 'Fish Surimi Peptide' in Under Five Children Suffering from Moderate Acute Malnutrition in Bangladesh

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Abstract : Objective: Moderate acute malnutrition (MAM) is a major cause of morbidity and mortality in under-5 children of low-income countries. Approximately 14.6% of all under-5 mortality worldwide is attributed to MAM with >3 times increased risk of death compared to well-nourished peers. Prevalence of MAM among under-5 children in Bangladesh is ~12% (~1.7 million). Providing a diet containing adequate nutrients is the mainstay of treatment of children with MAM. It is now possible to process fish into fish peptides with longer shelf-life without refrigerator, known as 'Fish Surimi peptide' and this could be an attractive alternative to supply fish protein in the diet of children in low-income countries like Bangladesh. We conducted this study to assess the acceptability of Fish Surimi peptide given with various foods/meals in 2-5 years old children with MAM. Design/methods: Fish Surimi peptide is broken down from white fish meat using plant-derived enzyme and the ingredient is just fish meat consisted of 20 different kinds of amino acids including nine essential amino acids. In a convenience sample of 34 children we completed the study ward of Dhaka Hospital of icddr,b in Bangladesh during November 2014 through February 2015. For each child the study was for two consecutive days: i.e. direct observation of food intake of two lunches and two suppers. In a randomly and blinded manner and cross over design an individual child received Fish Surimi peptide (5g at lunch and 5g at supper) mixed meal [e.g. 30g rice and 30g dahl (thick lentil soup) or 60g of a vegetables-lentil-rice mixed local dish known as khichuri in one day and the same meal on other day without any Fish Surimi peptide. We observed the completeness and eagerness of eating and any possible side effect (e.g. allergy, vomiting, diarrhea etc.) over these two days. Results: The mean±SD age of the enrolled children was 38.4±9.4 months, weight 11.22±1.41 kg, height 91.0±6.3 cm, and WHZ was -2.13±0.76. Their mean±SD total feeding time (minutes) for lunch was 25.4±13.6 vs. 20.6±11.1 (p=0.130) and supper was 22.3±9.7 vs. 19.7±11.2 (p=0.297), and total amount (g) of food eaten in lunch and supper was found similar 116.1±7.0 vs. 117.7±8.0 (p=3.01) in A (Fish Surimi) and B group respectively. Score in Hedonic scale by mother on test of food given to children at lunch or supper was 3.9±0.2 vs. 4.0±0.2 (p=0.317) and on overall acceptance (including the texture, smell, and appearance) of food at lunch or supper was 3.9±0.2 vs. 4.0±0.2 (p=0.317) for A and B group respectively. No adverse event was observed in any food group during the study period. Conclusions: Fish Surimi peptide may be a cost effective supplementary food, which should be tested by appropriately designed randomized community level intervention trial both in wasted children and stunted children.

Keywords : protein-energy malnutrition, moderate acute malnutrition, weight-for-height z-score, mid upper arm circumference, acceptability, fish surimi peptide, under-5 children
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