Nutrition Morbidity interactions in preschool children

Background information

It is well recognised that preschool children are a nutritionally vulnerable segment of the population; they are also very susceptible to morbidity due to infections. Under-nutrition is associated with impaired immune function and consequent increased susceptibility to infections; infections aggravate under-nutrition; if this vicious cycle continues it can result in the death of the child. It has been postulated that the current deficits as regards energy and other nutrients in the diet, and the consequent changes in the immune system, are the major factors responsible for the increased susceptibility to infections in undernourished children.

In earlier studies to investigate the association between under-nutrition, immune status and infection-related morbidity, weight for age has been used as the indicator for assessment of undernutrition. This was because there were no parametric standards for the assessment of current energy deficit. In 2006 the WHO suggested that BMI for age standards for the preschool and school age children, thereby making it possible for the first time to explore the relationship between current energy deficit and morbidity due to infection. Analysis of NFHS3 data on morbidity in preschool children in relation to underweight, stunting and low BMI showed that the relative risk of morbidity was higher in those whose BMI for age was <-2SD than in those whose weight for age was <-2SD. It is essential to undertake prospective research studies to confirm these findings. Against this background NFI has initiated a study to assess the inter relationship between nutrition and infections .

Hypothesis

BMI for age, which is an index of current energy deficit, is a better indicator than weight for age for assessing risk of infection associated with undernutrition.

Objective

Primary

To assess the risk of infection associated with undernutrition as assessed by underweight, stunting and low BMI for age.

Secondary

To assess the impact of infections on the nutritional status of children as assessed by weight, height and BMI

Study design

A cross-sectional study design with children in the 0-59 months group being recruited from chosen areas until the required sample size is obtained would have been appropriate if the only aim of the was to investigate the association between undernutrition and infection rates.

However, given that it is also proposed to study, as a secondary objective, the effect of morbidity on nutritional status, it was decided to undertake a linked cross-sectional study. All children of the appropriate age group in the chosen anganwadis are to be recruited and followed up every fortnight. Information on morbidity is also to be collected every fortnight.

All the children are to be weighed once a month. In infants, the length is to be measured once a month, and in children height is to be measured once in three months.To assess the impact (if any) of morbidity on nutritional status and the time taken for recovery (where recovery occurs), children who had experienced a morbidity event are to be weighed once a fortnight for the next one month. Major factors that modulate nutritional status during early childhood include birth weight, infant and young child feeding practices, morbidity due to infections, treatment of infections, and nutritional care during infection and convalescence. The prevalence, severity and frequency of morbidity due to infections depend upon infant and young child feeding and caring practices, the nutritional status of the child, and environmental hygiene. The effect of morbidity on nutritional status depends upon the severity and duration of infection, the quality of health care provided, and feeding during illness and convalescence. .