Maternal and Child Malnutrition

T. Deepa Reddy ** & Prof. K. Anuradha *
Research scholar** Professor*
Department of Home science
S. V. University  Tirupati

The Immune System in Children with Malnutrition—A Systematic Review

Malnourished children have increased risk of dying, with most deaths caused by infectious diseases. One mechanism behind this may be impaired immune function. However, this immune deficiency of malnutrition has not previously been systematically reviewed.

Objectives

To review the scientific literature about immune function in children with malnutrition.

Methods

A systematic literature search was done in PubMed, and additional articles identified in reference lists and by correspondence with experts in the field. The inclusion criteria were studies investigating immune parameters in children aged 1–60 months, in relation to malnutrition, defined as wasting, underweight, stunting, or oedematous malnutrition.

Results

Malnutrition is associated with impaired gut-barrier function, reduced exocrine secretion of protective substances, and low levels of plasma complement. Lymphatic tissue, particularly the thymus, undergoes atrophy, and delayed-type hypersensitivity responses are reduced. Levels of antibodies produced after vaccination is reduced in severely malnourished children, but intact in moderate malnutrition. Cytokine patterns are skewed towards a Th2-response. Other immune parameters seem intact or elevated: leukocyte and lymphocyte counts are unaffected, and levels of immunoglobulins, particularly immunoglobulin A, are high. The acute phase response appears intact, and sometimes present in the absence of clinical infection. Limitations to the studies include their observational and often cross-sectional design and frequent confounding by infections in the children studied.

Conclusion

The immunological alterations associated with malnutrition in children may contribute to increased mortality. However, the underlying mechanisms are still inadequately understood, as well as why different types of malnutrition are associated with different immunological alterations. Better designed prospective studies are needed, based on current understanding of immunology and with state-of-the-art methods.