



Fas-induced apoptosis in malnourished infants

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Abstract:

Malnutrition in children is frequently associated with an increased incidence of infection. Apoptosis of immune cells in undernourished organisms may cause an increase in the organism's susceptibility to diseases related to immune suppression. Lymphocyte apoptosis was described in malnutrition. The role of factor of apoptosis signal (fas,CD95) in apoptosis of lymphocyte populations in malnourished children is still unclear. Objective: This study investigated apoptosis in T lymphocytes in different types of malnutrition and the role of Fas in lymphocyte apoptosis and its relation to clinical and laboratory parameters of malnutrition. Study design: Sixty-three malnourished infants and children were compared to 27 healthy controls. Beside thorough history and clinical examination, laboratory investigations and flow cytometry assessment of T lymphocytes were done. The viability of T lymphocytes was determined by combination of fluorescence dye 7-amino actinomycin, CD95 and CD3. Results: There was significant increase in apoptotic T-cells in the patients compared to the controls. There was up-regulation of Fas expression in CD3+ cells. Furthermore CD3+/CD95+ cells were less viable than CD3+/CD95- cells of the patients and than CD3+/CD95+ cells of the controls. All the clinical and laboratory parameters of the studied patients showed no significant correlations with any of the apoptotic indices. Conclusion: Increased apoptosis in T lymphocytes in malnourished children may be the cause of the decrease in lymphocyte count in their peripheral blood. This in turn may be the cause of decreased cell mediated immunity and the more common occurrence of infection in such patients. Upregulation of Fas may be the cause of apoptosis in T lymphocytes in these malnourished children.

Keywords:

Fas, apoptosis, malnutrition, flow cytometry, infection, T lymphocytes.

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