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SERUM THYMIC FACTOR (FTS) CONTENTS OF THE THYMUS IN UNDERNOURISHED SENEGALESE CHILDREN

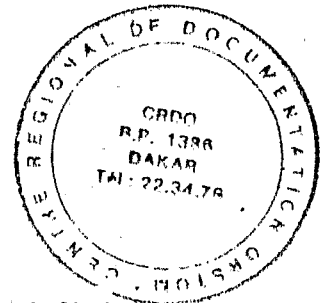
"A post-mortem immuno-histological study"

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Mét de communication

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INTRODUCTION

Protein-energy malnutrition (PEM) in children results in a deficiency of cellular immunity (1,2,3). The study, in the blood, of the function of thymic lymphocyte differentiation (circulating F.T.S. activity, in vitro lymphocyte maturation by thymic factors), suggests an impairment of hormonal secretion by the thymus (4,5,6) We have confirmed this hypothesis by a post-mortem immunohistological study of the thymic involution and the F.T.S. contents of the thymus among young children presenting with P.E.M. at the time of death.

MATERIALS AND METHODS

Fifty eight children aged from 1 day to 4 years, who died at different stages of nutritional deficiency, were studied. This study consists of clinical examinations, anthropometric measurements and histopathological studies of the visceral organs for the evidence of infection.

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The thymus in each case was rapidly but carefully dissected out, weighed and deep-frozen in liquid nitrogen. Cryostat sections were then made for histopathological studies of macrophages and immunofluorescence of F.T.S. and fibronectine. The F.T.S. contents of the thymus was evaluated considering the number and the immunofluorescent intensity of the cellular elements stained by the anti-serum.

Finally a statistical analysis of the different parameters was done making it possible to draw conclusions.

RESULTS AND CONCLUSIONS

Forty severe forms of P.E.M. (i.e. marasmus, Kwashiorkor and marasmic-Kwashiorkor), out of the 58 undernourished children studied, assumed an identical picture. There was an involution of the thymus, always marked, and associated with the disappearance (sometimes completely) of the F.T.S.-contents of the thymus.

This disappearance of F.T.S. from the thymus (Fig.1) follows a double process :

- 1) A diminution of the F.T.S. concentration and therefore possibly its intracellular synthesis in the epithelial cell network and in the Hassall's bodies, which seems to act as a function of nutritional deficiency.
- 2) In extreme cases a total disappearance of these epithelial elements, which appears linked with the necrotic process of involution.
- 3) The thymic involution is associated with an inflammatory reaction as expressed by the double invasion of the parenchyme by the macrophages and by cellular elements which stain for fibronectine (fibroblasts and newly formed capillaries).

In our study we have not formed a relationship between infection and other parameters studied except those which are essentially due to inflammatory reaction.

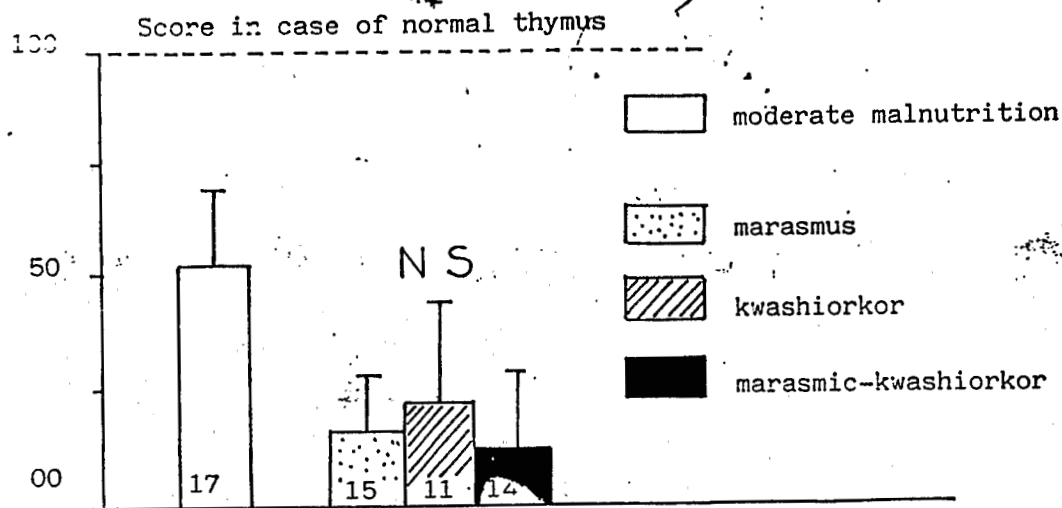


Fig.1) EVALUATION OF THE INTRA-THYMIC CONTENTS OF F.T.S. EXPRESSED AS THE PERCENTAGE OF NORMAL ($\bar{X} \pm s$)

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