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THE CLINICO-PATHOLOGICAL CONSEQUENCES OF SEVERE PROTEIN-ENERGY MALNUTRITION IN DECEASED SENEGALESE CHILDREN.

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INTRODUCTION

The clinico-pathological consequences of the severe forms of protein-energy malnutrition (P.E.M.) were studied in 40 children who died between the ages of 8 days and 4 years. We have compared, on the one hand, the thymic involution with that of the visceral organs (liver, spleen, pancreas) and, on the other hand, the respective consequences of the three severe forms of P.E.M. (marasmus, Kwashiorkor and marasmic-kwashiorkor).

MATERIALS AND METHODS

The nutritional status was assessed clinically (presence of edema, wasting of fat and muscle), anthropometrically (weight, height, weight/height ratio, height/age ratio), and histologically (liver steatosis). The thymus, liver, spleen and pancreas were accurately weighed. Their relation to the body height, expressed as a percentage of the normal (using the table of STOWENS), allowed for comparisons, which were independent of age, to be made.

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All in all 58 children of both sexes were studied, 40 of these were severely malnourished. Their mean age was 12 months (± 2.7).

In another work by Jambon *et al* (also reported in this symposium) an immunohistological study of the thymus was carried out.

The different parameters collected were analyzed statistically by the method of data processing.

RESULTS AND CONCLUSIONS

The children studied had various degrees of malnutrition with a mean weight/height ratio of 69,6 % (± 2.9), a weight/age ratio of 65,0 % (± 4.5) and height/age ratio of 95,9 % (± 1.8). These are shown in the table below :

	Nutritional status			
	moderate Malnutrition	Marasmus	Kwashiorkor	Marasmic Kwashiorkor
Number of cases	18	15	11	14
Weight/age ratio (%)	78 %	52 %	74 %	55 %

- 1) The thymic involution is always marked in the severe forms of malnutrition (Fig.1)
- 2) This involution of the thymus is more important than those of other organs (Figs.1,2)
- 3) There are no significant differences in the weights of the organs studied among the severe forms of malnutrition (thymus, liver, spleen, pancreas) ; the same was observed with the serum thymic factor (F.T.S.) and fibronectine contents of the thymus.

The different nutritional parameters studied normally : weight deficit (weight/age ratio, weight/height ratio) stature deficit (height/age ratio) and fatty infiltration of the liver (a reflection of the visceral protein pool) have different significances.

The independent behaviours, vis à vis the totality of the nutritional criteria and histological and immunological parameters that were studied, suggest the existence of many physiopathological mechanisms in the course of P.E.M., the syndromes of marasmus, Kwashiorkor and marasmic-Kwashiorkor demonstrate these. However, these three clinical forms have the same ultimate phase and consequences i.e. a severe atrophy of the thymus and a disappearance of the F.T.S. secretion. These observations agree with the modern concept which describes P.E.M. as a clinico-pathological continuity (1,2,3).

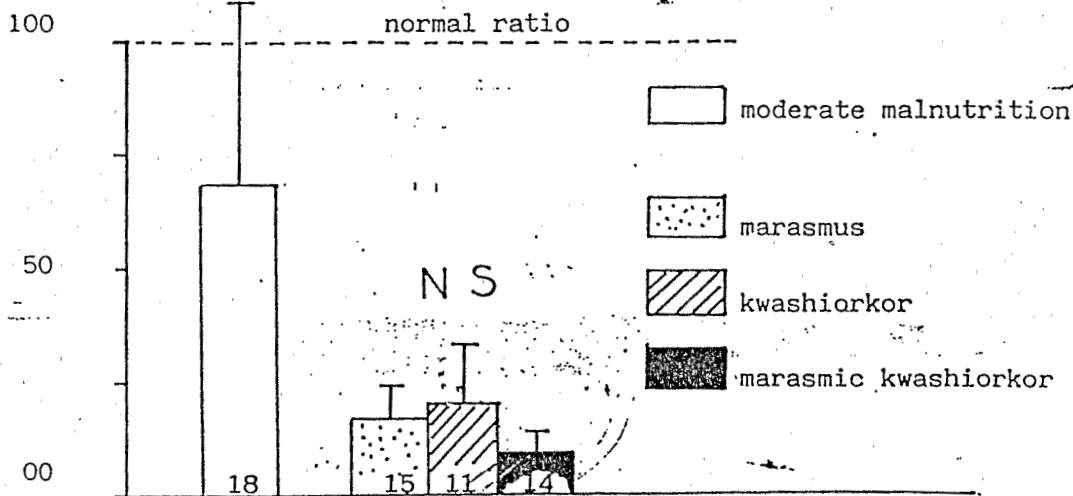


Fig.1) WEIGHT/HEIGHT RATIO OF THE THYMUS EXPRESSED AS THE PERCENTAGE OF NORMAL ($\bar{X} \pm s$)

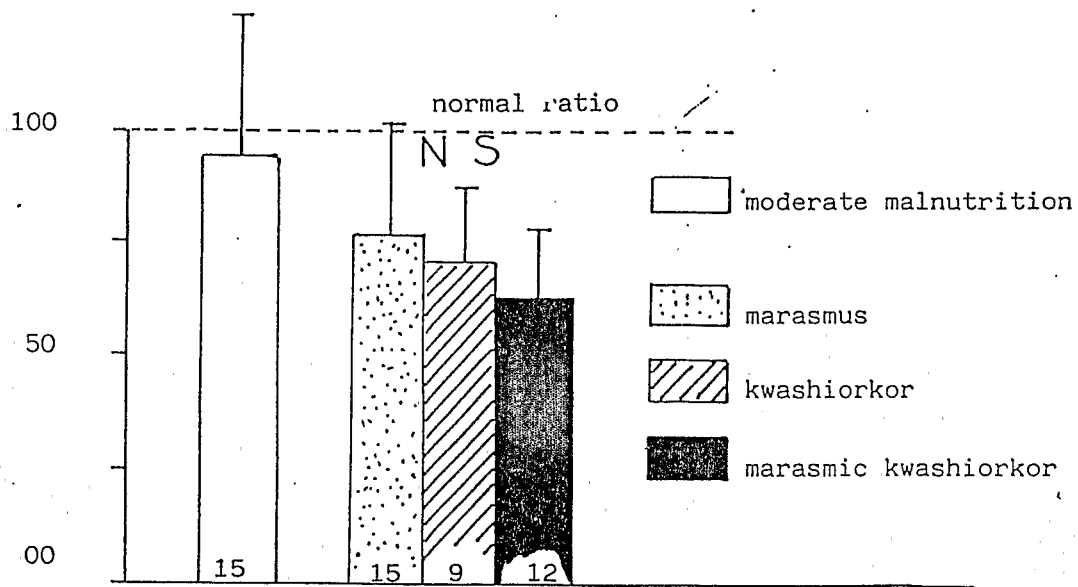


Fig.2) WEIGHT/HEIGHT RATIO OF THE PANCREAS EXPRESSED AS THE PERCENTAGE OF NORMAL ($\bar{X} \pm s$)

REFERENCES

- 1) WATERLOW (J.C.), Br. Med. J. 3, 566, 1972
- 2) ALLEYNE (C.A.), HAY (R.W.), PICOU (D.I.), STANFIELD (J.P.), WHITEHEAD (R.G.), in protein-energy malnutrition, Edward-Arnold, London 1977
- 3) VITERI (F.E.), in text-book of pediatric nutrition, (R.M.) SUSKIND, raven Press, New-York 1981.