CLINICAL MANIFESTATIONS OF MALNUTRITION

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The symptomatology of specific deficiency diseases and of protein-energy malnutrition is too complex to be used as such in the assessment of their importance from a public health point of view. Only those signs which can easily be identified or accurately measured and are observed with a high degree of constancy can be used for such a purpose. Besides those direct indicators, a crude assessment of the situation can also be obtained by the analysis of vital statistics, food consumption surveys, and the ecological background. As an example, we shall review in the present paper the various criteria that can be used in the assessment of protein-calorie malnutrition (PCM) and of avitaminosis A, two of the most important deficiency diseases existing at present in the world.

PROTEIN–CALORIE MALNUTRITION

Clinically, children may be classified as kwashiorkor (edematous form), marasmus (dry form) or marasmic kwashiorkor (intermediate form with edema). The symptomatology is rather complex and may include varying degrees of growth failure (weight and height), gastrointestinal disorders (loss of appetite, vomiting, diarrhea), lesions of skin and hair, mental changes, and edema in the case of kwashiorkor and of marasmic kwashiorkor. There are also various signs of avitaminosis and changes in the blood, urine, and cell composition; hypoalbuminemia is one of the earliest and most characteristic changes in
kwashiorkor and marasmic kwashiorkor. It is obvious that this symptomatology is too complex to be used as such and that simple criteria represented by constant and easily observable signs must be identified for assessing the importance of malnutrition. The following criteria can be considered for such a purpose.

**Clinical Signs**

**Edema.** The presence of bilateral edema is an almost unmistakable sign of moderate to severe protein-energy malnutrition in children; the causes of erroneous diagnosis are few. In pregnant women, the chances of errors are greater but do not affect significantly the results if edema is detected in a large number of women. It is a sign of advanced protein-energy malnutrition and as such will not be observed in a significant percentage of the vulnerable population (preschool age children, pregnant and lactating women) unless the nutritional situation is gravely affected or a fairly large sample of population has been examined. Attempts have been made to standardize the test for detection of edema, although this has never been fully achieved. The presence of edema is characteristic of the kwashiorkor or marasmic kwashiorkor forms of PCM but fails to identify the marasmic forms. There is, therefore, a tendency to underestimate the importance of the problem. It is, nevertheless, a useful indicator, especially in emergency situations when no other one is available; it has been used with success during the drought in the Sahel.

**Anthropometric Measurements**

**Weight for age.** This is the simplest and most common measurement for the assessment of growth. A scale is required which must be checked and adjusted with known weights; ideally, this should be done every day before any measurements are made. For the assessment of the nutritional status, the actual weight should be compared with a reference weight, i.e., the weight of a "normal child" of the same age. There have been diverging opinions as to which reference growth figures should be used, i.e., national or international ones. There is much to say in