

# Editorial

## The Kwashiorkor Syndrome

Publication of the monographs, *Kwashiorkor in Africa*<sup>1</sup> and *Síndrome Policarencial Infantil (Kwashiorkor) and its Prevention in Central America*<sup>2</sup> has focussed attention on a syndrome which is probably the most serious and widespread nutritional disorder in the world today. While this syndrome is undoubtedly rare in the United States, a few cases have been encountered.<sup>3</sup> The syndrome has been described in many countries since early in this century, under a variety of names, some descriptive of clinical findings, others suggestive of etiologic relationships.<sup>2</sup> The joint FAO/WHO Expert Committee on Nutrition used the simple term "protein malnutrition" at the conference in Gambia in 1952.<sup>4</sup>

Regardless of designation, the primary cause of kwashiorkor has been shown to be a diet deficient in good quality protein and the syndrome appears in the age group where protein need is greatest. Manifestations of the syndrome vary somewhat from one area of the world to another, due, in large part, to differences in diet. In many localities, caloric undernutrition and vitamin deficiency complicate deficiency of protein.

In Africa, the fundamental signs of kwashiorkor are considered to be retarded growth in the late breast-feeding, weaning, and post-weaning period, alterations in skin and hair pigmentation, edema, fatty infiltration, cellular necrosis or fibrosis of the liver, and a high mortality unless good dietary protein is provided.<sup>1</sup> Atrophy of pancreatic acini may also be a fundamental lesion.

In Central America, protein deficiency is accompanied, in most instances, by inadequate caloric intake and often by vitamin deficiency

as well. Thus, caloric undernutrition exerts a more important role in the clinical picture of kwashiorkor in this hemisphere than in Africa.<sup>2</sup> Another difference between the two areas is the high incidence of the syndrome in children over four years of age in Central America. In both areas, important features of the disorder, in addition to the basic findings noted above, are a variety of dermatoses, gastrointestinal disturbances (anorexia, digestive upsets, diarrhea and mild steatorrhea), peevishness and mental apathy and anemia which may be normocytic or slightly macrocytic. The skin lesions are multiple in type: hyperpigmentation is common, with lesions which resemble pellagra in appearance but not in distribution; hyperkeratinization and vascular changes occur frequently. The etiology of these dermatoses is uncertain. Multiple deficiencies may be involved; an inadequate supply of vitamin A, riboflavin, niacin, or other vitamins has been suggested. The factors responsible for the changes in texture and color ("dyspigmentation") of the hair likewise have not been elucidated. Deficiencies of sulphur-containing amino acids or of vitamins, especially those of the B complex, have been considered but not proved. Basic information on the pathogenesis of the various aspects of the kwashiorkor syndrome may assist in delineating functions of individual amino acids and may uncover important nutrient interrelationships.

It is recognized that diarrhea, infectious diseases, and digestive upsets may act as secondary or precipitating causes of the kwashiorkor syndrome. The role of these factors needs to be clarified. Relationships

between protein malnutrition and parasitic infection and other diseases common in the tropics require elucidation.

Important aspects of the prevention and treatment of kwashiorkor remain to be solved. While therapy with skim milk powder is highly effective, this is practical only as an emergency measure. A search for inexpensive sources of good protein which may be used in child feeding is under way in many countries.<sup>5</sup> It is essential to determine whether a combination of vegetable proteins will prove a satisfactory substitute for animal protein. Even when satisfactory protein supplements become available, practical solution of the problem will be extremely difficult. Poverty, ignorance, food habits and prejudices, and an unhygienic environment are some of the co-existing factors requiring attention.

In areas where kwashiorkor is common, a high incidence of chronic liver disease is noted in adults, not only cirrhosis but also primary carcinoma. More accurate knowledge of the role of diet and individual nutrients in the development and therapy of these pathologic states is needed. Solution of the serious prob-

lems of protein deficiency should be a challenge to all those interested in the science of nutrition.

—GRACE A. GOLDSMITH, M.D.

Division of Nutrition and Metabolism,  
Dept. of Medicine, Tulane University,  
New Orleans, La.

#### REFERENCES

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3. GOLDSMITH, GRACE A.: Unpublished data.
4. *Malnutrition in African Mothers, Infants and Young Children*, Report of the Second Inter-African Conference on Nutrition held under the Auspices of the Commission for Technical Cooperation in Africa, South of the Sahara (C.C.T.A.) at Fajara, Gambia, 19-27 November, 1952, London, Her Majesty's Stationery Office, 1954.
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#### The Word "Kwashiorkor"

"As the earliest importer of the word 'kwashiorkor,' . . . I feel I must defend . . . its use.

"What is there absurd? This word means this disease. It is defined as 'the disease the child gets when the next baby is born.' And in most countries it has been found that this is indeed the situation often associated with its occurrence. It has now been fairly extensively investigated, and it is proved to be largely due to protein malnutrition. But possibly this is not the whole story. Perhaps certain amino-acids are more important than others. Perhaps certain minerals, toxic drugs, or herbs will prove to be part of the picture. Until we know more accurately what are the factors leading to this disease, some people prefer to use a word which conveys an idea without yet making unjustified claims to detailed knowledge.

"Some of my medical friends were horrified at the word 'kwashiorkor,' but now many of them have learnt to pronounce it quite intelligibly. I am sure they will enjoy learning to say 'tzipitl.'

"But beri-beri is still called beri-beri although we now know it is due to aneurine deficiency. Rickets (a word used probably among primitive Anglo-Saxon tribes) is still called rickets though we now recognise it as vitamin-D deficiency. 'Onyalai,' as far as I know, has no serious rivals. What about 'yaws' or even 'malaria'? 'Kwashiorkor' is to some extent a confession of ignorance. But I cannot see why, because it is African, it is therefore unacceptable. Scipio, at any rate, would not have been surprised."

—Cicely D. Williams (Letter to the Editor). *Lancet* 1: 1071, 1955.

