

Nutrition of Mother And Child

By Dr. S. G. Srikantia

IN any consideration of problems of malnutrition, infants, growing children, pregnant and nursing mothers require special attention, since from the nutritional standpoint they constitute particularly vulnerable segments. The tremendous changes in the physiological processes of the mother consequent on pregnancy impose great stress and result in markedly increased needs of most nutrients. Similarly, the rapid rate of growth during infancy and early childhood call for relatively greater amounts of nutrients to be supplied to them. It is to be expected therefore that if these needs are not met the effects of malnutrition become quickly manifest.

During the last two decades a considerable amount of work has been carried out at the National Institute of Nutrition (formerly Nutrition Research Laboratories) on the nutritional problems of pregnant and nursing women, as well as those of infants and children. The results of these studies have helped not only in the understanding of the real dimensions of the problems and the factors underlying their causes, but also to formulate practical action programmes for the control and prevention of the widespread prevalence of malnutrition in these groups.

The Physiological Strain On The Mother

It is not uncommon in our country to see many young girls, still in their teens, to have already become mothers, particularly among the poorer sections of the population. It is also not uncommon to see young women having several children at intervals of less than 15 to 18 months. These repeated pregnancies and the almost continuous state of lactation imposed thereon, seriously affect the health of the mother, particularly when the diet is unsatisfactory—a state of affairs all too common, not only because of economic factors; but also because of wrong beliefs, customs, traditions and prejudices which impose food taboos.

Nutritional Deficiencies

Most dietaries of the poorer sections in our country are predominantly cereal based with little variety in food items and are, therefore, generally unbalanced. They do not provide all the needed nutrients even for the non-pregnant woman and much less so for the pregnant woman. It has often been found that during pregnancy many women cut down on the quantity of even this unsatisfactory diet, thus worsening the already bad situation. As a result the incidence of many deficiency diseases is very high among them. Signs of vitamin B Complex deficiency like sore mouth and tongue, cracks at the angles of the mouth and lips, a sensation of pins and needles in the lower extremities, burning of feet and hands are seen in almost 50% of pregnant women, while signs of deficiency of

Vitamin A and of protein are seen in about 10 to 15%.

Premature Births And Low Birth-Weight Of Babies

A well nourished woman generally gains about 10 kg., in body weight during pregnancy, has few complications and delivers a baby weighing around 3.2 to 3.5 kg. In marked contrast, an undernourished woman gains not more than 6 kg. and delivers a baby weighing only 2.6 to 2.8 kg. Also, a considerable proportion of pregnancies among the undernourished women—almost one in five ends in abortions, miscarriages or still births and in many more, there is premature births, a high proportion of which do not survive beyond the first month of life. Apart from these complications during pregnancy, infants born to such undernourished mothers, are born with low reserves of many essential nutrients—particularly iron, Vitamin A, and Vitamin B12 and thus develop deficiency diseases during infancy and early childhood. There is now a growing body of evidence to suggest that the nutritional status of the mother may also influence the maturation of the brain of the foetus. It is obvious, therefore, that the pregnant woman's diet must receive special attention, particularly during the latter half of pregnancy, when the foetus grows at a very rapid rate.

PRACTICAL METHODS FOR IMPROVEMENT

Because of economic and other factors, however, it is not possible for many women to consume good diets in adequate amounts throughout pregnancy. Studies carried out recently at the National Institute of Nutrition have shown, that improving the diets of pregnant women even for a short period of the last 4 or 6 weeks of pregnancy can result in considerable benefit not only to the mother but also to the baby, as seen by increased birth weights and higher levels of many constituents in blood. This finding must be considered as being of great practical importance, since supplementation of the diet for short periods of 4-6 weeks may be within the reach of many subjects.

The Problem Of Anaemia

A complication of pregnancy responsible for considerable maternal mortality and morbidity among our poor pregnant women is anaemia due to deficiency of iron. Because of the predominantly cereal based nature of our diets though there is seemingly adequate amounts of iron, enough is not absorbed and almost 50% of pregnant women at term are anaemic. The long range solution to this problem must lie in the diversification of the diets so as to ensure that they contain enough absorbable iron. This is, however, unlikely to be achieved in the near future and it is essential therefore, to have short-term measures. A recent study carried out involving a large number of subjects has shown that one tablet providing 30 mg. of iron, taken daily during the last 100 days of pregnancy can ensure the prevention of anaemia in virtually all pregnant women—a simple public health measure that can completely change the pattern of pregnancy anaemias.

The Drain On Mother's Tissues

Fortunately, in our country most women successfully breast feed their infants, sometimes the breast feeding being prolonged for periods of over two years, in spite of consuming inadequate diets. There was little information regarding the quality of this milk until extensive studies were initiated at the National Institute of Nutrition about 15 years ago. The results of these investigations have shown that though undernourished herself, the nursing mother easily puts out 400-600 ml. of milk of good quality with respect to protein, fats and carbohydrates but somewhat inferior with respect to vitamins and minerals. Since the loss of these nutrients in milk, are not made up by increasing the dietary intake, maternal tissues break down, to provide these nutrients to the infant, and she herself suffers from the ill effects of malnutrition. The widespread prevalence of many vitamin deficiency signs, testifies to this drain on maternal tissues. Considerable amount of calcium are lost through milk, and it is quite possible that the high incidence of Osteoporosis, a condition characterised by thinning of the bones and leading to back-ache in these women is due to the removal of calcium from the bone into the milk.

Malnutrition In The Children : Retardation Of Physical And Mental Growth

Most infants who are breast-fed grow satisfactorily during the first six months, but subsequently their growth rate tends to fall off. The most important, single cause for this, is the belief that as long as the child is at the breast, it does not need additional food. This belief is unfortunately wrong since breast milk can satisfy the needs of the infant till it is about four to six months old and beyond this age, supplementary foods must be started. One of the major reasons for the widespread prevalence of protein calorie malnutrition in our young children today, is the late weaning and the delay in starting the supplementary feeds. These are not started at six months, as they should be, but postponed until 12 to 15 months in many instances.

While mild degrees of protein calorie malnutrition cause a retardation in physical growth and result in substandard height and weight, more severe degrees of malnutrition lead to two very serious diseases known as Kwashiorkor and marasmus—conditions characterised by marked stunting, severe wasting, obvious mental changes, accumulation of water in the body, cracked skin, and discoloured hair. Untreated, a great majority of such children cannot survive. Recognised in time and adequately treated, the children recover from the acute disease, but long term studies carried out at the institute, wherein such children have been followed up ten years later have shown that their physical status is markedly lower than that of normal children, and what is perhaps of greater concern, is that their intellectual capacity appear to be somewhat impaired. If results of experiments carried out on animals can be projected into the human situation, it would appear that deprivation of protein and calories even for a short period, at a crucial stage of development during early childhood can result in permanent stunting in later life even though dietary bottlenecks are removed later on. The implications of these findings are obvious.

Prevention Is Better Than Cure

The real extent of the prevalence of protein calorie malnutrition is difficult to assess. It may be likened to an iceberg. What is visible is but a small portion of what is hidden below the surface. Our surveys have shown that at any given point of time, in South India alone, there may be as many as 300,000 children suffering from the acute disease and that for every child who has these manifestations there may be 8-10 whose nutritional status is so marginal that they may develop the full-fledged disease, should a minor stress be superimposed. These figures may be conservative estimates. The problem wherein we can admit them and treat them. It is a problem that needs to be controlled and prevented. This does not, however, minimise the importance of proper treatment of the moderate and severe forms of the disease.

Results of many studies carried out at the Institute have pointed the way not only for proper therapy but also for the prevention. Milk protein has been found to be the ideal source of protein to treat these children, but because of the cost involved as well as the limited availability of milk, it is impracticable to suggest it on a large scale. It has been found that diets based upon judicious combination of vegetable proteins, as well as diets based upon a mixture of pulse protein and milk protein in the proportion of 3:1 are as efficacious as milk diets alone—thus not only cutting down considerably on the cost but also stretching our meagre supplies of milk.

A Practical Nutrition Programme For Pre-School Children

In the past, there have been many attempts to organise programmes for improving the nutritional status of pre-school children. The emphasis in these programmes had been on the distribution of foods given as aid by external agencies, and there had really been no attempt to mobilise community participation. It is not surprising, therefore, that these programmes have failed to make any significant impact on the community, and there was no element of self-generation in them. In addition, the cost of transportation, preparation and distribution of the food in such programmes has been considerable.

The National Institute of Nutrition have recently developed an action programme for pre-school children by enlisting the cooperation of the village community and utilising the local food resources. Locally available protein rich foods were identified, recipes based on these foods developed, prepared and tested. Discussions were then held with local leaders of two villages and the cooperation of the local women's club and the youth club obtained. These organisations provided all the services for the entire feeding programme—procurement of raw foods, transport, actual cooking and preparation of the recipe, and distribution to the children. Because of economic factors, the cost of food was subsidised. This programme has now been in operation for 18 months and the success of this has been indicated by the fact that people from the surrounding villages are asking for the initiation of such a measure in their areas.

(Contd. on page 308)