

THE ROLE OF MICRONUTRIENTS IN WOMEN'S HEALTH DURING PREGNANCY



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Good health is a product of heredity, environment, and optimum nutrition.

Nutritional deficiency resulting from improper diet because of ignorance of nutrition, is a common cause of several problems in modern society.

Pregnancy is a stressful condition involving numerous physical and mental changes in the maternal body as the foetus develops in-utero. During pregnancy, the nutritional needs are enhanced, recent evidence suggests that the foetus competes with the mother for a available nutrients, and that lack of availability of micronutrients can adversely affect foetal growth and development leading to miscarriages, foetal malformations, preterm births, low birth weight, and an increased perinatal morbidity and mortality. Providing pregnant women with information and advice regarding proper nutrition consisting of a balanced intake of proteins, carbohydrates, and fats to ensure steady weight gain is important, besides these, the diet should provide adequate quantities of roughage (fibre content), vitamins and minerals. The higher tissue needs of micronutrients during pregnancy calls for spe-

cial attention to ensure that supplements of these micronutrients are made readily available to all pregnant women to assure an optimal pregnancy outcome.

Years of experience of providing antenatal care has brought home the important clinical observation that maternal pedal oedema during pregnancy is of frequent occurrence, and that in well nourished non-toxaemic women, the earlier practice of advising salt restriction and / or diuretics was ill-advised, and potentially harmful.

Pregnancy induced hypertension is a known and dreaded complication of pregnancy, many studies have shown that providing balanced supplements of calcium, magnesium and vitamin D3 during the antenatal period, plays a protective role in reducing the incidence and severity of the disease.

Miscarriages can result from infections, genetic causes, immunological factors, and several environmental causes. Dietary deficiencies and lack of essential nutrients also play a significant role. Amongst these, vitamin C, folic acid, vitamin B12, other B complex factors, vitamin E and trace minerals have been implicated.

Birth defects may be a product of heredity, but they are just as likely to occur from teratogenic drugs, viral infections, and nutritional deficiency. WHO reports that one-third to half of all pregnant women suffer from folic acid deficiency. It has been shown that pre-pregnancy counselling and administration of folic acid supplements to women prior to conception and during early pregnancy has definitely reduced the incidence of open neural tube defects in the subsequent offsprings of women who have been previously affected. Other micronutrients which help to reduce the incidence of foetal birth defects include vitamin A, Vitamin B12, ascorbic acid, zinc, and iodine.

Pre-eclampsia characterized by sudden weight gain, hypertension, pedal oedema, and with increasing severity, symptoms of headache, epigastric pain, visual disturbances, and oliguria can be medically alarming, and if not controlled in time, may lead to dire maternal and foetal consequences. Calcium, magnesium, zinc, vitamin D, and proteins are the nutrients most commonly involved with the pathophysiology of pre-eclampsia. Calcium supplementation during pregnancy leads to substantial reduction in both the systolic as well as the diastolic blood pressure, and thus lowers the incidence of pre-eclampsia. Calcium supplementation is possibly more effective in lowering maternal blood pressure than the routine use of low dose aspirin. There is evidence that magnesium deficiency during pregnancy predisposes to pre-eclampsia. Magnesium supplementation helps to conserve the body levels of calcium. Magnesium depresses neuromuscular excitation, hence magnesium administration has been found to be most effective in controlling eclamptic fits. Magnesium supplementation during pregnancy also helps to prevent IUGR and preterm births.

Zinc plays an important role in ensuring optimal foetal growth and development. Deficiency of zinc has been recognized to contribute to an enhanced risk of miscarriages, birth defects, intrauterine growth retardation of the foetus and to perinatal wastage. Prenatal supplementation of zinc has thus an important role in the prevention of adverse foetal outcome. Excessive iron in-

take during pregnancy predisposes to the elimination of zinc, and thus indirectly predisposes to IUGR. Overenthusiastic management of pregnancy anaemia with oral iron administration may thus predispose to IUGR.

Iron administration during pregnancy is recognized to be of great importance in India, as anaemia is rampant in this country. Anaemia is a major contributory factor in the occurrence of an adverse pregnancy outcome both for the mother and the foetus. However misplaced enthusiasm in the treatment of pregnancy anaemia may lead to maternal side effects which are often avoidable, and may predispose to IUGR because of ignorance. An important point to bear in mind is to avoid administration of oral iron and calcium supplements at the same time, these two should be given at separate times, oral iron is best advised after food intake, whereas oral calcium should be given in between meals. Concurrent administration of proteins, folic acid, vitamin B12 and vitamin C is desirable. Vitamin K is necessary to prevent haemorrhagic disease of the new born. Maternal supplementation of vit. K in the latter weeks of pregnancy has a protective value. In the end, it may be stated that supplementation of prenatal micronutrients to the pregnant mother assures the obstetrician of making the mother comfortable during pregnancy, and assures us of a healthier baby which gets a better state in life.

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