Vitamin and Mineral Status of Pregnant Women and Newborns in Some Groups of the Spanish Population

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For some time we have been studying the nutritional status of the Spanish population, particularly that of some vulnerable groups, such as pregnant women and newborns. For most of the population, we found satisfactory intakes of vitamins B1, B6, C, and folates and deficiencies in vitamins A and B2. Mean intakes of calcium, iron, and iodine were adequate, but those of zinc and magnesium were deficient (3).

By arithmetically extrapolating the data from the average representative Spanish diet, we calculated the possible risk of mineral and vitamin deficiencies in people, such as the elderly, dieters, teenagers, and others who often eat low-calorie diets. Two caloric levels of 1,500 and 2,000 kcal were established, both of which were representative of Spanish eating habits. The vitamin and mineral content of these diets was compared with the average recommended daily allowance (RDA).

Results show that dietary intake of these nutrients, except for vitamin C and niacin, did not reach the RDA level; only the latter two and calcium, iron, and vitamin B1 attained 80% of the RDA in the 2,000-kcal diet. In the 1,500-kcal diet, all micronutrients with the exception of vitamin C and niacin stood at close to 50% of the recommended level and consequently were inadequate.

In 1984, blood levels of vitamins A, B2, and E were studied in pregnant women in two hospitals in Madrid and Granada, Spain (2). The situation was satisfactory for vitamin E but not for A and B2. There was also a relationship between intakes and biochemical data in both hospitals.

We are currently conducting a study on 77 pregnant women and 120 newborn infants at the Social Security Hospital in Mérida, Spain. The preliminary results for iron status are fairly satisfactory: 17% of the women and 5% of the infants have very slight deficiencies.
Another study (1) has been carried out on 131 pregnant women in a Madrid Hospital with the aim of determining nutritive status with regard to three minerals (calcium, phosphorus, and magnesium) and vitamin D. We compared two groups: the first were given their normal diet and the second their normal diet plus milk. The daily calcium content of the normal diet was about 700 mg, whereas that of the milk-supplemented diet was 1,300 mg. Each of the two groups had its respective controls of nonpregnant women. Amounts of Ca$^{2+}$, Ca, P, Mg, PTH, calcitonin, and 25-(OH)D$_3$ were determined in blood, and Ca, P, and Mg in urine. The results showed a reduction of Ca$^{2+}$ in the women without the milk supplement that was not apparent in the other group. Conversely, their PTH increased, although the level was never higher than that of their controls. There were no changes in the 25-(OH)D$_3$ levels. At the beginning of gestation, urinary excretion of calcium increased in all the pregnant women; this increase was sustained in the women on the calcium-rich diet, whereas it disappeared in the others. Hyperphosphaturia and hypermagnesiuria remained until the end of gestation in both groups.

On the whole, these results suggest that a calcium intake of about 700 mg/day (that of pregnant women on their usual diet) is insufficient for pregnancy. Further studies are needed to confirm this.

REFERENCES