Does chorionicity influence the minerals and vitamin profile of pregnant women with twin pregnancies following a diet?

Agostino **Ruotolo**, Irene **Renda**, Chiara **De Blasi**, Gioia **Ninotta**, Oumaima **Ammar**, Antonia **Napoletana**, Sofia **Lotti**, Monica **Dinu**, Viola **Seravalli**, Francesco **Sofi**, Mariarosaria **Di Tommaso**

Azienda Ospedaliero Universitaria Careggi, Florence, Italy.

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Objective. Multiple pregnancies constitute a challenge in terms of nutrition. However, the micronutrient requirements in twin gestations are not fully described. Thus, we aim to assess the microelements nutritional status during subsequent trimesters of twin pregnancies, considering chorionicity and maternal diet as key variables.

Materials and Methods. A prospective observational study was carried out between October 2022 and May 2024, at Careggi University Hospital in Florence. A total of 31 women with twin pregnancies were involved, 23 pairs of dichorionic diamniotic (DCDA) twins and 8 pairs of monochorionic diamniotic (MCDA) twins. Maternal blood samples were collected during each trimester and were assayed for serum magnesium, calcium, haemoglobin, ferritin, iron, folate, zinc, vitamin D, and vitamin B12. Data regarding weight gain, dietary intake, vitamin supplementation, and pregnancy outcomes were collected.

Results. Among all pregnant women, 74.2% had DCDA pregnancies and 25.8% had MCDA pregnancies. 83.9% of them received multivitamin supplementations and 50% received iron and vitamin D supplementation. Across all trimesters, a significant increase in the weight gain occurred in both groups ($p < 0.05$). Interestingly, in the DCDA group, almost all micronutrients have progressively and significantly decreased throughout trimesters ($p < 0.05$). This trend was also shown in MCDA group, but the difference was statistically significant only in the zinc ($p < 0.05$). The concentration of vitamin D and iron remained stable across trimesters.

Conclusions. DCDA pregnancies exhibited a decline in the most studied micronutrient, except for vitamin D and iron due to their supplementation. These findings highlight that nutritional intake may require improvement, particularly in dichorionic pregnancies.