

Effect of magnesium citrate on iron status parameters: an interventional study

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Introduction

Magnesium is widespread in food and is essential for many metabolic activities. Although a balanced diet is recommended as the primary source of magnesium to meet recommended intakes, magnesium supplementation is becoming increasingly popular. Some studies indicate an inverse association between serum magnesium levels and anemia in the general population and people with specific disorders. The aim of this study was to examine the effect of magnesium citrate supplementation on iron status parameters.

The study included 100 participants of both sexes, aged over 18 years, without disease, consuming magnesium-containing dietary supplements in the last three months. Participants took once a day for a period of ten days commercially available magnesium citrate in powder form for direct oral administration (Livsane Magnesium citrate direct, bags, EvropaLek d.o.o., Belgrade) in a daily dose of 375 mg, which is 100% of the nutritional reference value (NRV) for magnesium. Serum biochemical parameters were analyzed before the start of the intervention, at the beginning (t0), on the fifth day (t1), and on the eleventh day (t2) of the intervention period.

Materials and methods

Results

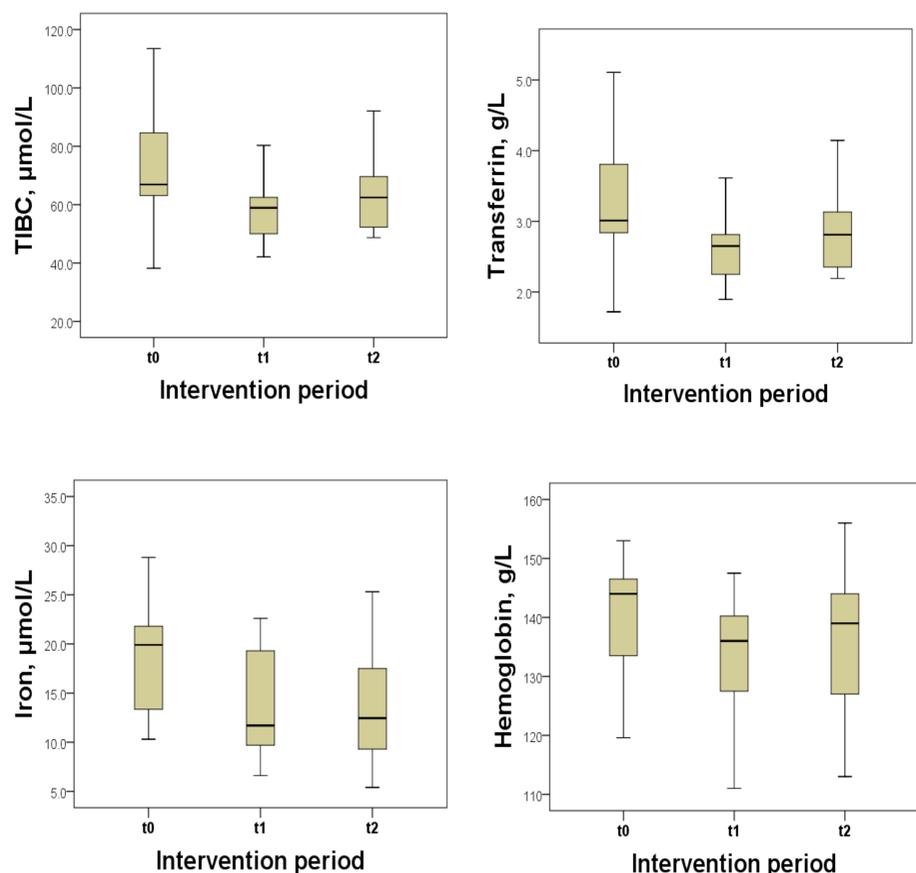


Figure 1. Graphical presentation of changes of the analyzed parameters

The results of our study have identified an effect of magnesium citrate on some iron status parameters (Figure 1). A decreasing trend of values from t0 to t1 was observed for all examined parameters, with a subsequent tendency to backup to t2, similar to baseline values. The most significant changes are observed in the values of TIBC and transferrin before and after supplementation (65.9 µmol/L vs 62.4 µmol/L, $P = 0.019$ and 3.0 g/L vs 2.8 g/L, $P = 0.019$, respectively). Although a significant decline in TIBC and transferrin values has been observed in t1 ($P = 0.028$), they return to baseline values in t2. Also, although not statistically significant, a decrease in hemoglobin (144 g/L vs 136 g/L vs 139 g/L, $P = 0.353$) and iron concentration (19.9 µmol/L vs 12.7 µmol/L vs 12.4 µmol/L, $P = 0.181$) was observed in the investigated period.

Based on the results of this study, it can be concluded that caution should be exercised regarding magnesium supplementation and that laboratory monitoring of magnesium and iron status is necessary to avoid adverse consequences.

Conclusion

References:

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