Long-term zinc and iron supplementation in children of short stature

Long-term Zinc and Iron Supplementation in Children of Short Stature: Effect of Growth/Trace Element Content in Tissues

We evaluated the effect of one year of supplementation with iron plus zinc (12 mg/d Fe+++ and 12.5 Zinc++), zinc alone (12.5 mg/day of Zn++) and placebo on the iron, copper and selenium tissue contents in 30 well-selected children of short stature (16 M and 14 F; 4-11 years old). Before and after supplementation, we measured the concentrations of iron, transferring, ferritin, zinc and copper in serum of erythrocytes and leukocytes, and of zinc, copper and selenium in hair, as well as glutathion peroxidase activity in erythrocytes. Before supplementation, ferritin and erythrocyte and hair zinc contents were significantly lower than in age-matched control, while the other measured indices were in the normal range. Iron plus zinc supplementation caused an improvement in growth rate in all subjects, i.e. the medium Zscore increased from &ndash;2.22 +/- 0.45 to &ndash;0.65 +/-0.55 (p<0.01) In the zinc-supplemented group, only subjects whose ferritin levels were higher than 20 ng/L before supplementation showed similar improvement of growth rate. Iron plus zinc supplementation should be a reasonable treatment in short, prepubertal children affected by marginal zinc and iron deficiency.