



VITAMIN D DEFICIENCY CAN MODULATE GH/IGF-1 AXIS IN GROWTH HORMONE DEFICIENT CHILDREN.

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The authors declare no conflict of interest

Background:

According to the latest studies vitamin D has an effect on the production and/or secretion of IGF-1 in the liver, but the exact mechanism regulating these relationships has not been thoroughly explained.

Objective and hypotheses:

Evaluation of the relationship between 25(OH)D and IGF-1 levels in the serum of children with growth hormone deficiency (GHD).

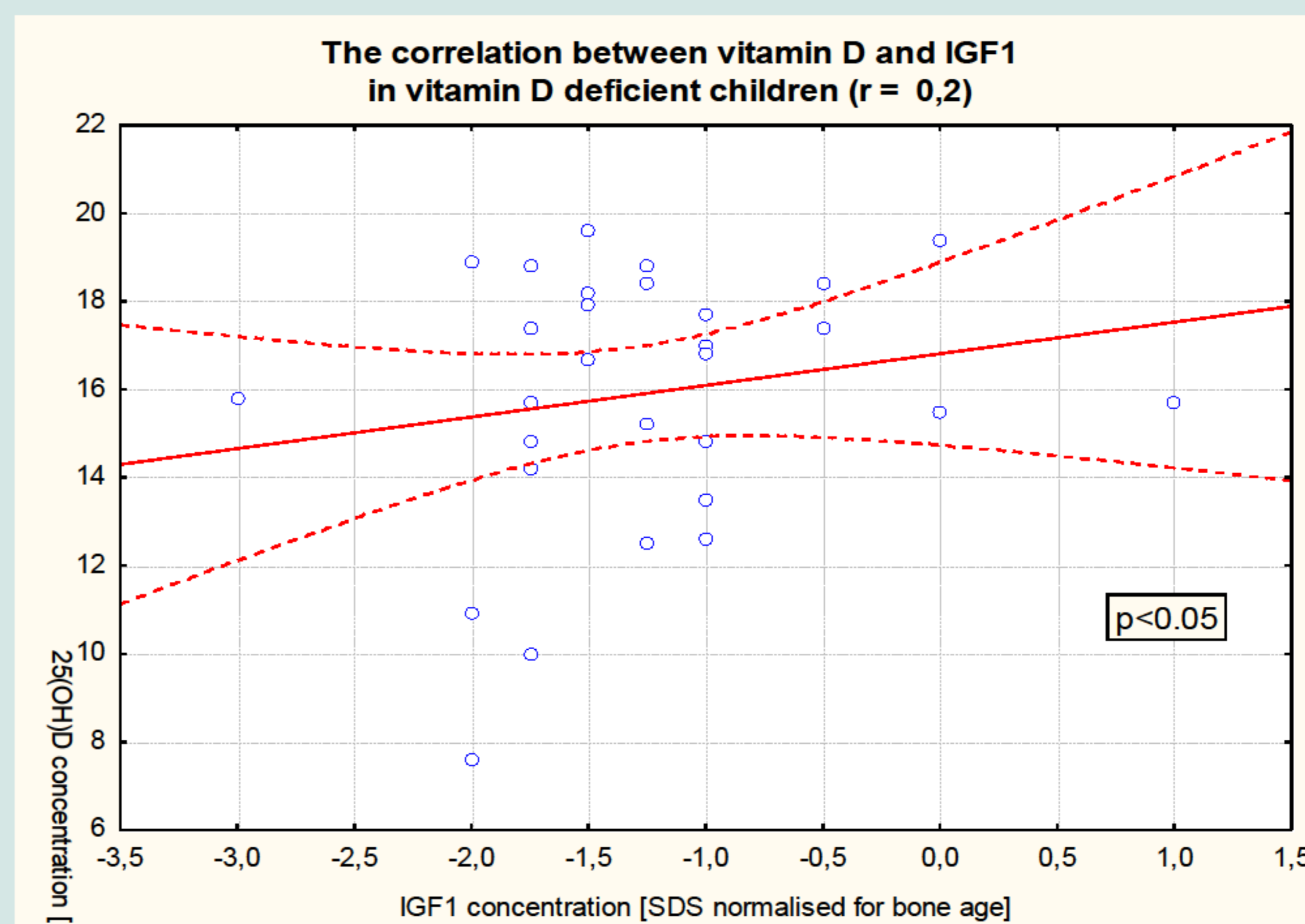
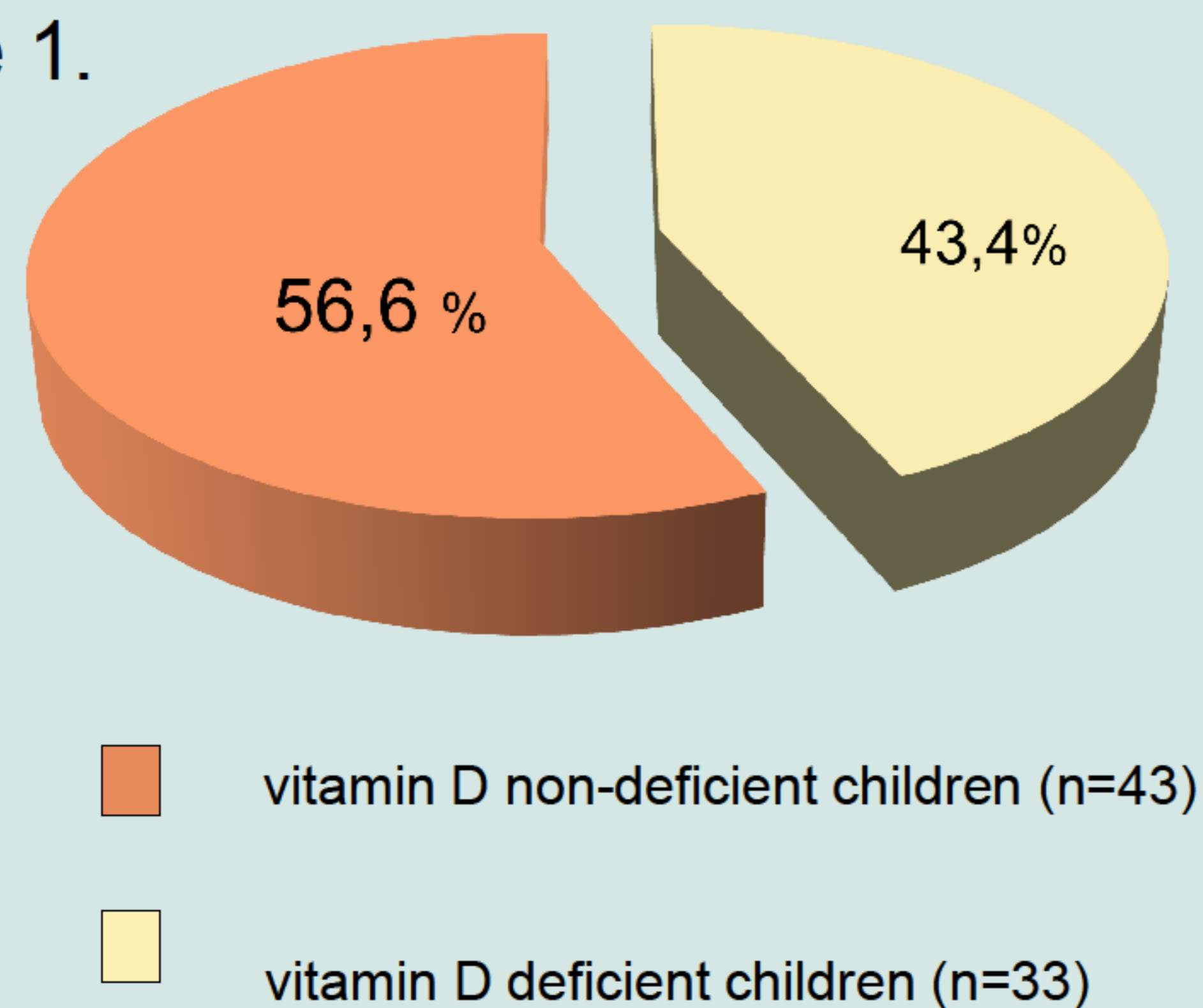
Material and methods:

The study group consisted of 76 GH deficient children qualified for growth hormone therapy. GHD was defined as GH secretion in stimulatory tests below 10 ng/ml. 25(OH)D and IGF-1 concentrations were evaluated before the start of growth hormone treatment. The study group was divided into two subgroups, depending on the concentration of 25(OH)D: deficient children in need of treatment [25(OH)D < 20 ng/ml]; and non-deficient children [25(OH)D > 20 ng/ml]. The two subgroups did not differ significantly in terms of growth hormone deficiency defined as the maximum secretion of growth hormone in tests. IGF-1 concentration was expressed as an SD normalized for bone age.

Results:

At the start of the study 33 (43,4%) children had a vitamin D deficit, and 43 (56,6%) were non-deficient (Figure 1). A weak positive correlation between 25(OH)D concentration and IGF-1 concentration was found ($p < 0.05$) only in children with 25(OH)D deficiency. There was no significant correlation between the concentrations of 25(OH)D and IGF-1 in the group without vitamin D deficiency or in the whole study group.

Figure 1.



Conclusions:

The results suggest that low serum 25(OH)D concentrations can influence IGF-1 concentrations. In children with vitamin D deficiency assessment of IGF-1 concentrations may not be reliable, and their vitamin D status should be normalized before evaluation of IGF-1 concentrations.

