

Vitamin D status in Iranian obese and non-obese children



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Introduction

- ❑ Vitamin D deficiency is now a critical issue due to its high prevalence and side effects.
- ❑ Prevalence of inadequate vitamin D level is reported considerably higher in Middle-eastern countries.
- ❑ Low vitamin D level is responsible for health problems such as cardiovascular diseases, hypertension, infections and common cancers.
- ❑ Evidence indicates the association between obesity and lower serum 25-hydroxyvitamin D (25(OH)D) level.

Objective

- ❑ The aim of the present study was to examine serum 25(OH)D status of obese and non-obese Iranian children and compare their therapeutic response to identical oral vitamin D3 treatment.

Methods

- ❑ Non-randomized clinical trial
- ❑ Measuring serum 25(OH)D level of 45 obese and 45 non-obese Iranian children aged 2-14 years
- ❑ Treating those with serum 25(OH)D status less than 30 ng/ml (73 cases)
- ❑ Treating with One pearl of vitamin D3 (50,000 IU) once a week for 6 weeks
- ❑ Measuring serum vitamin D once more two weeks after treatment

Results

- ❑ Baseline frequency of hypovitaminosis D was 43/45 (95.6%) in obese and 30/45 (66.7%) in non-obese children ($p < 0.001$).
- ❑ Post treatment of 73 cases (43 obese, 30 non-obese), the above percentages were decreased to 24/43 (55.8%) and 1/30 (3.3%), respectively ($p < 0.001$).

Table 1. Baseline characteristic

Characteristics	Obese	Non-obese	P-value
Number of subjects	45	45	-
Age(years)	9.4 ± 2.1	7.4 ± 3.2	0.01
Gender(Female / Male)	24 / 21	24 / 21	1
Weight(Kg)	54.5 ± 15.5	24.6 ± 9.8	<0.001
Height(Cm)	142 ± 12.3	121 ± 21	<0.001
BMI(Kg/m ²)	26.3 ± 3.8	15.9 ± 1.6	<0.001
Diet calcium(mg/dl)	822 ± 200.6	844 ± 141.4	0.53
Diet Vitamin D(IU/day)	53.4 ± 13	54.4 ± 17.2	0.74
Tanner staging	1	27	33
	2	7	7
	3	9	5
	4	1	0
	5	1	0
Skin color type	3	33	34
	4	12	11

Table 2. Baseline laboratory data

Laboratory data	Obese	Non-obese	P-value
Calcium (mg/dl)	9.7 ± 0.4	9.7 ± 0.5	0.45
Phosphorus (mg/dl)	4.9 ± 0.6	5.2 ± 0.6	0.24
PTH (pg/ml)	34.3 ± 14	28.1 ± 12	0.02
25(OH) D (ng/ml)	11.9 ± 6	22.4 ± 16	<0.001
Alkaline Phosphatase (IU/L)	700 ± 138	579 ± 126	<0.001

Conclusions

- ❑ Our study demonstrated a high frequency of vitamin D deficiency among Iranian children, particularly the obese ones.
- ❑ Moreover, low therapeutic response in the obese group is witnessed.

