

Survey Serum 25-Hydroxyvitamin D concentration in obese children and clinical significance in chinese population

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OBJECTIVES

Simple obese is a worldwide public health problem. Recent studies suggested a possible relationship between obese and vitamin D deficiency. To discuss the relationship between 25-Hydroxyvitamin D with glucose and lipid metabolism of simple obese in Chinese children.

METHODS

Sixty five children with obese (35 mild-to-moderate, 50 severe) and sixty-two children with normal weight were enrolled in this trial. The Serum 25-Hydroxyvitamin D, insulin, cortisol and C peptide were measured by CLIA.

RESULTS

There was significant difference between obese and normal children in serum 25(OH)D ($P < 0.001$). Serum 25(OH)D was inversely related with BMI ($r = -0.456, P < 0.001$), BMISDS ($r = -0.447, P < 0.001$). Serum 25(OH)D was inversely related with triglyceride obese children $r = -0.389, P < 0.001$. Moreover, triglyceride in obese children with serum 25(OH)D ≤ 50 nmol/L was higher than that in obese children with 25(OH)D > 50 nmol/L ($P = 0.05$). Serum 25(OH)D was not statistically significant with blood total cholesterol and low density lipoprotein cholesterol (hdl-c), blood glucose, insulin, hemoglobin A1c in obese children ($P = 0.05$).

CONCLUSIONS

Serum 25(OH)D in obese children are lower than normal weight children, Serum 25(OH)D was inversely related with height and BMISDS, 25(OH)D was inversely related with triglyceride level in obese, which imply that 25(OH)D maybe a risk factor of obesity and abnormal blood lipid.

The Relationship Between 25-Hydroxyvitamin D Levels and clinical parameters in obese group ($\bar{x} \pm s$)

clinical parameters	25(OH)D < 50nmol/L	25(OH)D ≥ 50nmol/L	P
Size	39	46	-
Age	9.95±2.30	9.64±1.85	-
Height(cm)	139.86±12.57	139.18±12.50	-
Weight(kg)	52.47±14.06	51.45±11.93	-
BMI	26.52±3.65	25.93±2.46	0.450
BMISDS	1.73±0.60	1.64±0.43	0.399
Triglycerides(mmol/L)	1.93±0.30	1.53±0.60	0.000*
Total cholesterol (mmol/L)	4.16±0.76	4.11±0.59	0.973
High-density lipoprotein(mmol/L)	1.33±0.22	1.31±0.29	0.694
Low-density lipoprotein(mmol/L)	2.22±0.59	2.20±0.40	0.836
Free fatty acids (mmol/L)	0.59±0.17	0.57±0.13	0.643
Blood glucose(mmol/L)	4.65±1.16	4.44±0.40	0.398
Insulin(uIU/ml)	7.90±5.26	8.31±6.04	0.950
HOMA-IR	1.65±1.30	1.66±1.28	0.872
C-peptide(ng/ml)	1.29±0.69	1.34±0.98	0.648
Cortisol(ug/dl)	12.09±6.69	11.54±7.45	0.882
Glycated hemoglobin (%)	4.86±0.64	4.71±0.50	0.214
Waistline	85.27±10.37	82.98±8.25	0.340
Hips	87.19±8.80	86.59±9.98	0.995
WHR	0.97±0.05	0.96±0.06	0.450

*: Rank sum test or *t*-test was used to assess the clinical parameters. $P < 0.05$ was considered statistically significant.

