

Vitamin D status, *VDR* gene polymorphisms, and health effect of oral vitamin D supplementation in obese men of subtropical China

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The correlation of hypovitaminosis D and obesity, and the benefit of vitamin D (VD) supplementation to improve the health status of obese individuals were suggested in many populations. Our present experiment aimed to study the above phenomenon in the subtropical Han Chinese obese men living in the sunshine city, who were less concerned for their VD status. A subgroup of case-control ($n = 82$ vs. 99) study was conducted, making use of the data and samples of an epidemiological survey, to evaluate the VD nutritional status and gene polymorphisms of VD receptor (*VDR*). And the local adult male residents with obesity or normal body weight were recruited for VD supplementation trial ($n = 21$ /group). No significant difference ($P = 0.79$) of circulating 25(OH)D concentration existed between the 2 groups, with similar percentage composition of VD deficiency, insufficiency, and sufficiency (38.4:51.5:10.1 for obese, vs. 29.3:64.6:6.1 for control, $P = 0.19$). The rs3782905 polymorphism of *VDR* tended to be different. After the oral supplementation with 50,000 IU of VD every week for 8 times, the serum 25(OH)D level was less elevated in obesity (1.6 times) than in the control (2.8 times), but the insulin resistance and serum parathyroid hormone (PTH) concentration significantly decreased in obese group ($P < 0.05$). Conclusively, the VD status in Chinese men of sunshine city was not optimistic without difference for obesity and health men. Oral VD supplementation was able to improve the insulin and PTH metabolism in obesity, though with relative minor elevation of serum 25(OH)D level.

Biography

Zhou has been focusing on exploring multiple functions of micronutrients in health since he began his graduate training in 2000. Now working in a research position of a public health institution, his interest was to investigate the roles of vitamin D and selenium to prevent chronic diseases with both laboratory experiment and human trial.

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