

•Association of body fat distribution and carotid intima media thickness with Vitamin D in obese premenopausal women

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OBJECTIVES

It has been demonstrated that there are differences in the effect of body mass index (BMI) on the serum 25-hydroxyvitamin D levels (25-OH D); differences appeared stronger in subjects with higher BMI. In this study we aimed to assess the association between 25-OH D status and body fat distribution and carotid intima media thickness.

METHODS

86 obese premenopausal women (aged 17-55 years) and 56 women with normal BMI took part in this study. Anthropometric measurements including waist circumferences(WC) were done. Serum concentrations of fasting blood glucose, insulin, calcium, PTH, 25-OH D were measured. Body fat distribution was evaluated by ultrasonography. Body fat thickness in four regions and carotid intima media thickness(CIMT) were measured. Total fat and fat ratio were also measured by Bioelectrical Impedance Analysis (BIA)

	Obesity (n=86)	Control (n56)	P
Visceral Fat Thickness (mm)	54,17	30,04	<0,001□
Preperitoneal Fat Thickness(mm)	20,36	6,72	<0,001□
Subcutaneous Fat Thickness(mm)	34,38	18,59	<0,001□
Carotid Intima Media Thickness((mm)	1,37	0,53	<0,001□
Epicardial fat Thickness (mm)	5,19	3,25	<0,001□
PTH ((pg/mL)	55,51	60,46	0,698
25-OH D (ng/ml)	15,83	11,40	0,587
Fasting blood glucose (mg/dL)	90,23	96,98	<0,001□

Table-1: Results of obesity and control groups

RESULTS

VFT, SFT, PFT and the CIMT were significantly higher in obese subjects ($p < 0.01$). 25-OH D were correlated negatively with waist circumference($p=0,025, r=-0,263$) and VFT($p=0,002, r=-0,366$). Whereas PTH levels were positively correlated with WC ($p=0,042, r=+0,241$). There wasn't any correlation with 25-OH D and SFT and PFT. Total fat mass was also negatively correlated with 25-OH D. CIMT was negatively correlated with 25-OH D ($p=0,028, r=-0,269$) and positively correlated with PTH ($p=0,018, r=+0,291$). Results are shown in Table-1.

CONCLUSIONS

In a study conducted in Shanghai in 2014; 25 (OH) D was negatively correlated with BMI, waist circumference, fat%, fat mass, VF and SCF. After adjustment for age and BMI, while fat mass, fat%, VF and triglycerides has continued to be inversely proportional with 25 (OH) D3. In regression analysis, waist circumference and VF are independently correlated with 25 (OH) D3. (1) We found a negative correlation between vitamin D and FBG, waist circumference and VF. Vitamin D had a positive correlation between whole body impedance. In a study conducted in 2006 in Italy; type 2 DM patients and controls were compared and evaluated by ultrasonography KIMT as in our study. Decreased 25 (OH) D is predicted regression analysis with risk factors for KIMT. (2) While in our study KIMT was negatively correlated with vitamin D.

References

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