Vitamin D deficiency is associated with different types of obesity in black and white children

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A recent study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism* (JCEM) found that while black and white children with vitamin D deficiency both had higher fat levels, black children were more likely to have higher levels of fat just under their skin and white children were more likely to have higher levels of fat between their internal organs.

Studies in adults and children have shown a link between obesity and vitamin D deficiency. However, data characterizing the racial differences in the relationship between obesity and vitamin D, particularly in fat tissue distribution are limited. This study examined the racial differences in the relationship between vitamin D status, BMI, fat levels, fat distribution and lipid levels in healthy obese and non-obese 8-18 year old black and white children.

"Vitamin D deficiency is rampant in American youth, and there is some suggestion in adults that low levels of vitamin D may be playing a role in the increasing rates of type 2 diabetes. It is possible the same may be true for youth with type 2 diabetes," said Silva Arslanian, MD, of the University of Pittsburgh and lead author of the study. "Our study found that vitamin D was associated with higher fat levels and lower levels of high-density lipoprotein (HDL), also known as good cholesterol, in both black and white children."

In this study, researchers measured vitamin D levels in 237 children and found the majority of the study participants were vitamin D deficient. Plasma vitamin D levels were associated inversely with BMI and fat levels and positively with HDL cholesterol in all subjects. Visceral adipose tissue (fat between internal organs) was higher in vitamin D deficient whites and subcutaneous adipose tissue (fat below the skin) was higher in vitamin D deficient blacks compared with their respective vitamin D non-deficient counterparts.

"Besides therapeutic interventions to correct the high rates of vitamin D deficiency in youth, benefits of vitamin D optimization on fat levels, lipid profile and risk of type 2 diabetes need to be explored," said Arslanian.

More information: The article, "Vitamin D status, adiposity and lipids in Black American and Caucasian children," appears in the May 2011 issue of JCEM.

Provided by The Endocrine Society

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