POSTER 12

PREVALENCE OF VITAMIN D DEFICIENCY AND INSULIN RESISTANCE AMONG OVERWEIGHT CHILDREN AND ADOLESCENTS: A DATABASE STUDY

Nicholas P. Ruthmann (M2)

(Aneesh Tosh, MD)
Department of Child Health

Objective: To evaluate the associations among vitamin D levels, obesity, and insulin resistance in an adolescent cohort.

Methods: A cross-sectional study was conducted using 10-18 year old adolescents enrolled in the Adolescent Diabetes and Obesity Clinic (ADOBE) through University of Missouri Health Care. Low serum 25-hydroxyvitamin D (hypovitaminosis D) was categorized as normal (≥30 ng/mL), insufficient (≥20 ng/mL), and deficient (<20 ng/mL). Body Mass Index (BMI) percentiles for age and gender were used to classify obesity status as overweight (>85%) and obese (>95%). Participants were considered insulin resistant with a fasting serum insulin level >20 mc unit/mL. Spearman's rank correlation coefficients were computed and statistical significance was established ($p < 0.05$).

Results: The study included 212 adolescents. Mean age at first visit was 13.3 years, 53% were female, 55 (26%) were self-described as African-American and 131 (61%) as Caucasian. Among 143 subjects for whom initial fasting insulin levels were obtained, 59% had levels >20 mc unit/mL. Mean 25-hydroxyvitamin D among 90 subjects was 24.0 ng/mL (SD 8.6), 42 (47%) were vitamin D insufficient, and 32 (36%) were vitamin D deficient. Of the 159 subjects who had multiple BMIs reported over time, 70 (44%) demonstrated BMI reduction. Increased BMI was associated with increased fasting insulin ($r=.53$, $p=0.001$) and decreased 25-hydroxyvitamin D ($r=.52$, $p=0.049$).

Conclusions: A moderate association exists in obese adolescents and hypovitaminosis D. A similar correlation with increased resistance to insulin is present in this cohort as well.