**HIGHLY SENSITIVE C-REACTIVE PROTEIN AND VITAMIN D3 AS CARDIOVASCULAR RISK FACTORS IN CHILDREN**

**S.R. Bovet**1, P.M. Bovet2,6, S.J. Hetzel3, K. Olson5, K.J. O'Connell2,3, D.K. Murdock4

1Aspirus Wausau Hospital, Wausau, WI, 2UW Health, Wausau, WI, USA, 3University of Wisconsin, Madison, WI, 4Aspirus Heart and Vascular Institute, Wausau, WI, 5Aspirus Heart and Vascular Institute Research and Education, Wausau, WI, 6Aspirus Clinics, Wausau, WI, USA

Background: In adults, levels of highly sensitive C-reactive protein (hsCRP) have been used as a reliable marker of cardiovascular risk. Recent studies on elderly and pediatric dialysis patients support that low Vitamin D3 and high hsCRP are related to cardiovascular disease. Evidence is lacking regarding hsCRP and vitamin D3 for estimating cardiovascular risk in the general pediatric population.

Methods and Results: We randomly selected serum samples of 50 second grade children and 50 eleventh grade children for hsCRP and 25-hydroxy vitamin D3 analysis. These serum samples were collected and frozen in 2003 for the Wausau School Project. From this project, we obtained demographic data, diet indices, and NMR lipid profiles and correlated them with our analyses. Our data indicates a significant difference (p<0.001) between the mean VitaminD3 levels of the second graders (24.8ng/ml) and eleventh graders (17.6ng/ml). Based on the mean values, both grades were shown to be insufficient (15-29ng/ml) of Vitamin D3. There was also a significant difference (p<0.002) between the mean Vitamin D3 levels of White and Non-White children, 22.8ng/ml and 15.0ng/ml respectively. For hsCRP, our data indicates a trend related to age (p<0.063) with the mean hsCRP value 0.92mg/L for second graders and 1.35mg/L for eleventh graders. For second and eleventh graders, there is significance (p<0.014) between hsCRP and triglycerides >=150mg/dL and hsCRP and Pattern A or B lipid profiles.

Conclusions: Based on our data, hsCRP and Vitamin D3 are important markers for assessing cardiovascular risk in children. Further studies are needed to establish clinical significance.