INTERACTIONS BETWEEN SMOKING, CIRCULATING PULMONARY SURFACTANT PROTEIN-B AND AORTIC ATHEROSCLEROSIS IN THE DALLAS HEART STUDY

ACC Poster Contributions
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Background: Although smoking is a potent risk factor for atherosclerosis, this relationship may not be cumulative and dose-dependent. Circulating levels of Pulmonary Surfactant Protein-B (PSAP-B) increase following tobacco-smoke induced damage to the alveolar-capillary membrane and may serve as a biomarker of the vascular effects of smoking.

Methods and Results: Plasma levels of PSAP-B were measured in 3,294 subjects enrolled in the Dallas Heart Study, a probability-based population sample. Coronary artery calcium (CAC) was measured by CT, and aortic plaque (AP) by MRI. PSAP-B levels were higher in current vs former and never smokers (p<0.001 for trend), and associated with increasing pack-year exposure and smoking frequency (p<0.001 for each). In univariable analysis, PSAP-B associated with prevalent CAC (P=0.01) and AP (P<0.0001). In multivariable analysis adjusting for traditional risk factors (including smoking exposure), increasing PSAP-B remained associated with aortic plaque (OR 1.18 per SD increment, 95% CI 1.05 to 1.32; P=0.01) but not CAC. A significant interaction was observed between PSAP-B, smoking, and AP (interaction=0.01), such that higher PSAP-B levels independently associated with AP in current smokers, but not in former or never smokers (figure).

Conclusions: PSAP-B levels increase markedly in association with smoking and independently associate with aortic plaque among smokers, supporting a role for PSAP-B as a marker of the vascular effects of tobacco exposure.

**Adjusted Odds of Detectable Aortic Plaque**

![Graph showing adjusted odds of detectable aortic plaque vs PSAP-B levels for current smokers, former smokers, and never smokers.](image-url)