Increased High Sensitivity C-Reactive Protein Is Associated With Aortic Valve Replacement in Patients With Mild to Moderate Aortic Valve Stenosis: A SEAS Substudy

Moderated Poster Contributions
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Background: To explore the relation between low grade inflammation and aortic valve stenosis we investigated whether high sensitivity C-reactive protein (hsCRP) measured at baseline and after one year was independently associated to subsequent aortic valve replacement (AVR).

Methods: Using the Simvastatin and Ezetimibe in Aortic Stenosis (SEAS) study we examined 1,423 patients with mild to moderate aortic valve stenosis. Echocardiographic parameters, lipids, white blood cell count (WBC) and hsCRP was measured at baseline and after one year of treatment. We defined elevated hsCRP as a numerical rise from baseline (hsCRP0) to year 1 (hsCRP1). AVR from one to five years was registered.

Results: During first year of treatment hsCRP was reduced both in patients later receiving AVR (2.27±31.85 to 1.94±34.38 mg/l, P<0.001) and not receiving AVR (1.98±30.79 to 1.41±32.51 mg/l, P<0.001). Despite that, high year one hsCRP (hsCRP1) was associated with AVR (HR= 1.12, P<0.001) independently of aortic valve area (AVA), gender, age, body mass index (BMI), diabetes, lipids, creatinine, smoking status, treatment allocation and hypertension In Cox-regression analyses. When adding baseline as well as one year hsCRP into a Cox Regression model, one year hsCRP predicted AVR (HR=1.17, P<0.001) independently of baseline hsCRP (HR=0.95, P=0.21), treatment allocation, gender, age, heart rate and AVA. A significantly higher rate of AVR was observed in the group with high (top quartile) hsCRP0 and an increase during the first year (hsCRP1) (AVRhighCRP0CRP1inc=47.3% vs. AVRhighCRP0CRP1dec=27.5, P<0.01). The prognostic benefit of a one year reduction in hsCRP was larger in patients with high vs. low hsCRP0 eliminating the difference in incidence of AVR between high vs. low hsCRP0 (AVRhighCRP0CRPdec=27.5% vs. AVRlowCRP0CRPdec=25.8%, P=NS) in patients with reduced hsCRP.

Conclusions: In asymptomatic aortic valve stenosis, a high hsCRP at baseline and increase in hsCRP during the first year is associated with later AVR independently of AVA, age, gender and other risk factors.