Troponin T but not C-reactive protein is associated with myocardial mass and risk for, and time to future surgery for aortic stenosis; a population-based study

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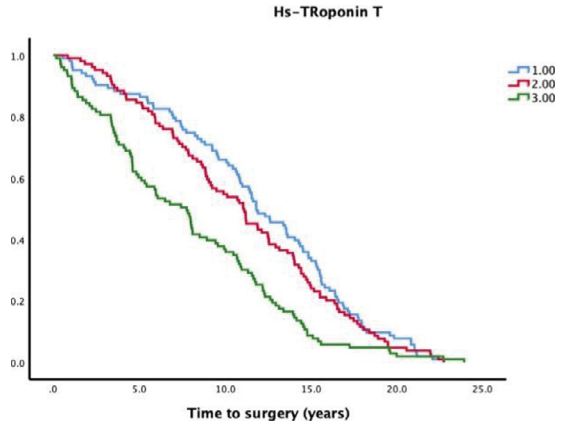
Objective: High-sensitivity troponin T (hs-TnT) and high-sensitivity C-reactive protein (hs-CRP) may convey prognostic information in patients with aortic stenosis (AS). However, many association studies were cross-sectional, and the presence of myocardial hypertrophy and concomitant coronary artery disease (CAD) were usually not described. This study evaluated if hs-TnT and hs-CRP relate to myocardial mass, and associate with risk of and time to future surgery for AS in patients with and without concomitant CAD.

Design: In total, 336 patients who underwent surgery due to AS after participation in large population surveys were identified. Median age [interquartile range] was 59.8 [10.3] years at survey and 68.3 [12.7] years at surgery, and 48% were women. The median time between survey and surgery was 10.9 [9.3] years. Preoperatively, myocardial mass and the presence of CAD were assessed. Two matched referents were allocated for each case, and hs-TnT and hs-CRP were determined in stored plasma samples from the baseline survey. Uni- and multivariable conditional logistic regression analyses were used to estimate the risk (odds ratio [95% confidence interval]) related to one (ln) standard deviation increase in hs-TnT and hs-CRP. Time to surgery was evaluated by Kaplan-Mayer analysis and Cox regression.

Results: Hs-TnT was independently associated with surgery for AS in patients with concomitant CAD (odds ratio [95% confidence interval]) (1.22 [1.02–1.46]) and without concomitant CAD (1.39 [1.05–1.84]). Hs-CRP was not associated with surgery for AS after adjustment for traditional cardiovascular risk factors (1.06 [0.92–1.23]).

Patients with high hs-TnT levels had shorter time to surgery compared those with low levels (Figure, $p<0.001$) whereas hs-CRP did not associate with time to surgery. Hs-TnT levels at survey associated independently with myocardial mass at surgery ($p=0.002$) but not with CAD and severity of stenosis.

Conclusions: Hs-TnT – but not hs-CRP – was associated with increased risk for, and shorter time to future surgery for AS. Hs-TnT associated with myocardial mass at surgery which indicates that Hs-TnT may be used as a clinical tool and allow for identification of patients with AS who could benefit from earlier intervention.



Time to surgery; tertiles of hs-TnT