Effect of aortic stenosis on the common carotid artery Doppler waveforms
Submission Type: **Scientific Oral**

Author Category

Introduction
The common carotid artery (CCA) Doppler waveform is subjectively evaluated as blunted in patients with severe aortic stenosis (AS). It is possible that quantitative measurements of the CCA waveform might offer additional diagnostic value.

Methods
We performed a retrospective study of 145 consecutive patients with carotid Doppler examinations and echocardiography within a one-day interval of each other. AS was classified as mild, moderate, or severe based on estimated valve area or mean trans valve gradient. The associations between degree of AS and the following variables were evaluated by ANOVA: peak-systolic velocity (PSV), end-diastolic velocity (EDV), the time to peak velocity (TTPV = time from EDV to PSV), and the acceleration time (AT = duration of constant increase in systolic velocity before the compliance peak). Receiver operating characteristic (ROC) curves were generated and areas under the curves (AUCs) estimated.

Results
There were 118 patients without AS, 5 with mild, 10 with moderate and 12 with severe AS (mean age 67.7 years, 64% men). AT ($p < 0.0001$) and TTPV ($p < 0.0001$) were consistently increased with the degree of aortic stenosis. Both variables and EDV were associated with the presence of AS. Presence of AS was strongly predicted by AT (AUC = 0.76; $p < 0.0001$) and TTPV (AUC = 0.84 ; $p < 0.0001$) but mildly by EDV (AUC = 0.59; $p = 0.049$).

Conclusion/Discussion
The AT and the TTPV are more strongly associated with the presence of aortic stenosis than PSV or EDV.