Severe autonomic failure (SAF) refers to combined abnormalities in reflex and tonic autonomic function. SAF indicates increased risk of death in post-infarction and heart failure patients, but has not been studied in aortic stenosis (AS). Here, we investigated SAF in patients with AS and tested its correlation with hemodynamic and biochemical markers. We prospectively enrolled 174 patients with moderate to severe AS in sinus rhythm (age 76 ± 9 years; mean aortic valve area 0.9 ± 0.3 cm²). Heart rate turbulence (as marker of autonomic reflex activity) and deceleration capacity (as marker of autonomic tonic activity) were calculated from 24-h Holter recordings. According to the previously published technology, SAF was considered present if both factors were abnormal. 44 (25.3%) of the 174 patients had signs of SAF. Patients with SAF had lower left ventricular ejection fraction (LVEF: 48.1 vs. 54.8%; p = 0.002), lower mean aortic gradients (28 vs. 34 mmHg, p = 0.019), higher systolic pulmonary artery pressures (46.8 vs. 40.9 mmHg, p = 0.028), higher levels of brain natriuretic peptide (905 vs. 407 ng/l; p = 0.003) and higher levels of high sensitive troponin I (0.65 vs. 0.24 ?g/l; p = 0.013). Impaired LVEF (<=50%) was the only independent factor associated with SAF, but only explained autonomic abnormalities in less than half of the patients.
patients with moderate to severe AS prevalence of SAF is high. SAF correlates with hemodynamic and biochemical markers indicating increased risk. Future studies should evaluate the prognostic value of SAF in patients with AS.

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