

Postural orthostatic sinus tachycardia (POST) is characterized by pronounced tachycardia upon transitioning from a supine to an upright position, without orthostatic hypotension, accompanied by various symptoms such as palpitations, dizziness, headache, fatigue, weakness, reduced exercise tolerance, blurred or “foggy” vision, anxiety, shortness of breath, and others. However, the detection rate and prognostic significance of POST in medical university students during a prospective study have not been fully investigated. Furthermore, data on the clinical value of using screening tests for its detection are lacking.

Aim. To determine the feasibility of using screening testing for detecting POST in medical university students and to evaluate its clinical and prognostic significance in a prospective study.

Material and methods. Over the period from 2007 to 2012, 5,560 medical university students aged 20-26 years were examined. Various orthostatic symptoms at rest and/or during the transition from supine to upright position were observed in 534 (9.6%) patients. When these symptoms were identified, screening testing was performed, including measurement of heart rate and blood pressure (BP) in the supine position, followed by measurements in the orthostatic position, with subsequent verification using a tilt-table test. Cardiac and extracardiac causes of POST were excluded. Patients with POST were advised to modify their lifestyle, and, if ineffective, to receive beta-blockers and/or a selective inhibitor of Ifchannels (ivabradine). The follow-up period after inclusion in the study was 12–14 years.

Results. POST was identified in 2.8% of medical university students aged 20-26 years, predominantly in women (83%). The sensitivity, specificity, and accuracy of POST diagnosis based on screening testing results with subsequent verification using the tilt-table test were 79.35%, 90.05%, and 85.26%, respectively. Following lifestyle modification and/or treatment with beta-blockers or ivabradine, all patients with POST showed significant clinical improvement both at the start of treatment and during subsequent follow-up: orthostatic symptoms resolved. On repeated examinations, including during tilt-table testing, POST was no longer registered. During prospective follow-up, 36.13% of patients with POST developed hypertension (HTN), 23.87% were found to have mitral valve prolapse (MVP), and 38.06% registered ventricular extrasystole. The development of HTN was highly correlated with a family history of arterial hypertension (odds ratio (OR) = 5.02) and increased BP in the orthostatic position (OR = 3.05), while MVP was correlated with retrograde atrial activation immediately following ventricular extrasystole (OR = 12.4).

Conclusion. POST was identified in 2.8% of medical university students aged 20–6 years, predominantly in females. The sensitivity, specificity, and accuracy of POST diagnosis based on screening test results were 79.35%, 90.05%, and 85.26%, respectively. The occurrence of POST with elevated BP during orthostatic testing are predictors for the development of HTN, MVP, and ventricular extrasystole.