

Different Autonomic Nervous Activities during Head-up Tilt and Daily Life between Postural Tachycardia Syndrome and Vasovagal Syncope

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The mechanism of postural tachycardia syndrome (POTS) remains to be clarified. So, we assessed changes in autonomic nervous activities during head-up tilt (HUT) and daily life in patients with POTS in comparison with vasovagal syncope (VVS). **Methods:** Eight patients with POTS, 18 with VVS who showed positive HUT and 15 controls with negative HUT were studied. Changes in autonomic nervous activities were assessed during both HUT and daily life using Task-Force monitor and Holter ECG. **Results:** 1) During initial 5 min of HUT, % decrease in stroke volume index and % increase in total peripheral resistance was significantly greater in POTS than in VVS. HF power became significantly smaller and LF/HF was significantly greater in POTS than in both VVS and controls during 5 min of HUT. 2) According to the analysis of heart rate variability in Holter ECG, SDNN and pNN50 were significantly lower in POTS than in controls, RMSSD was also lower in POTS than in VVS. In POTS patients, HF power was lower during day time (10-18:00); however, LF/HF was higher during both daytime and nighttime (22-6:00) than in other 2 groups. **Conclusions:** Exaggerated increase in adrenergic tone respond to decreased stroke volume during early phase of HUT was demonstrated in POTS. Moreover, sympathetic predominance during not only daytime but also night time was characteristic of patients with POTS and this enhanced adrenergic tone could lead to various symptoms of orthostatic intolerance in POTS.