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Postural Drop of Low Frequency Component of Heart Rate Variability in the Diagnosis of Orthostasis

George Stoupakis, Joe Colombo, Regina Rendas-Baum, Navin Budhwani, Rohit Arora, UMDNJ-New Jersey Medical School, Newark, N.J.

Background: Orthostasis, defined as sympathetic insufficiency, can result in syncope and falls with serious consequences. Autonomic profiling for patients at risk can be quantitatively measured with real time heart rate variability (RTHRV) that includes an analysis of respiratory rate. Components of RTHRV used to profile the autonomic nervous system (ANS) consist of Low Frequency Area (LFA), a measure of sympathetic tone, Respiratory Frequency Area (RFA), a measure of parasympathetic tone, and LFA/RFA ratio, a measure of sympathovagal balance.
Objective: To compare LFA vs LFA/RFA ratio as an indicator of orthostasis in outpatients.
Methods: Profiling was done using the ANSAR ANX 3.0 ANS monitor on 303 consecutive patients (175 females, mean age 62 years) who presented to their PMD for routine visit. A postural drop in LFA or LFA/RFA ratio on standing indicated orthostasis. Symptoms of orthostasis were present in 104 pts (34%).
Results: LFA identified more pts with orthostasis than LFA/RFA ratio (57% vs 32%, $p<0.01$). LFA identified more pts than physician diagnosis (57% vs 14%, $p<0.01$) and combination of diagnosis + symptoms (57% vs 44%, $p<0.01$). The ratio identified more pts than physician diagnosis (32% vs 14%, $p<0.01$) but less compared to combination of diagnosis and symptoms (32% vs 44%, $p<0.01$).
Conclusion: Outpatient profiling of LFA identified orthostasis more readily than LFA/RFA and physician diagnosis. Given the known variability in identifying orthostasis, LFA could become a requisite component of its definition.