

Presentation Abstract

Session: Autonomic Nervous System and Syncope

Friday, May 11, 2012, 1:30 PM - 3:00 PM

Presentation: AB38-01 - Autonomic Nervous System Testing Using Heart Rate Variability in the Young with Syncope

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Abstract: **Introduction:** Neurocardiogenic syncope (NCS) in young patients (pts) is related to altered vasomotor tone secondary to an immature autonomic nervous system (ANS). Head upright tilt table test (HUTT) is a gold standard test with high specificity and sensitivity of 75%. We assess the ANS using heart rate variability (HRV) in the young with syncope and compare it to the HUTT.

Methods: This is a retrospective study in the young with persistent symptoms of syncope in spite of fluid and salt therapy. All pts underwent a HUTT using a standard protocol with simultaneous analysis of the ANS using Intellegwave system utilizing HRV with orthostatic changes. The parameters of HRV estimated by time domain and frequency domain parameters such as low frequency (LF) and high frequency (HF) power representing sympathetic and parasympathetic activity respectively were compared between the positive and negative HUTT groups. Paired samples t-test and analysis of variance were used for statistical analysis.

Results: There were 66 pts with a mean age of 15.2 yrs (7 - 20y). HUTT was positive in 35 and negative in 31 pts. Amongst pts with positive HUTT, 26 had a vasodepressor/ cardioinhibitory response (NCS group) and 9 had changes suggestive of POTS. Significant differences for changes in LF, LF1, HF, LF1/HF and SDNN with orthostasis were observed between the NCS group and negative HUTT group. The LF, LF1 & HF decreased with upright posture in both groups, however the relative decrease in HF exceeded that in LF and LF1 with a resultant significant increase in the LF/HF and LF1/HF ratios in the NCS group. The only variables differing between the NCS group and POTS group were the LF/HF and LF1/HF ratios at rest. A cut-off point of 75% for a percentage decline in HF with orthostatic changes was used to differentiate NCS pts and HUTT negative pts. The sensitivity, specificity, positive and negative predictive values of this test were 73%, 65%, 63% and 74% respectively.

Conclusions: In the young with NCS there is greater HRV characterized by marked withdrawal of parasympathetic activity with orthostatic changes. Pts with POTS demonstrated a more modest degree of parasympathetic withdrawal. ANS

Disclosures:

A. Patange: None. **S. Gowda:** None. **H. Singh:** None.