PIII-29: Considerations for selecting software packages for measuring Heart Rate Variability

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Abstract:
Introduction: Heart rate variability (HRV) measures are commonly used to evaluate cardiovascular risk. Although there are established standards for measuring HRV, many of the
software systems use with algorithms which can lead to different values and misleading conclusions. The research question is: What are the strengths and weaknesses of three software packages (SphygmoCor, Nevrokard, and Kubios) for measuring HRV.

**Method(s):** Three instruments (SphygmoCor, Nevrokard, and Kubios) were evaluated. Where as the SphygmoCor directly collects the ECG, the ECG must be collected by another device, the R-waves marked, and the RR-intervals generated before being processed by Nevrokard and Kubios. All provide time and frequency measures; Kubios provides geometric and nonlinear measures of HRV.

**Results:** Agreement was assessed using data from 6 subjects. Twenty minutes of ECG were simultaneously recorded to the SphygmoCor and to a separate waveform acquisition system (Biopac). Prior to analysis by Nevrokard and Kubios, the Biopac records were processed (R-waves were marked and RR-intervals generated) using custom software. Bland-Altman plots were used to compare sets of HRV measures. Statistical analysis will be completed by December 2009.

**Discussion & Conclusions:** Software packages have different features and use different algorithms for measuring HRV. In choosing a system, one should consider (1) the accuracy of the algorithm for measuring HRV, (2) the flexibility of the software to select segments, and (3) need to purchase additional programs for generating the R-R intervals.

**Abstract History:**
This abstract has not been presented or accepted for presentation in whole or in part at the SNRS or other scientific meeting.

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