The purpose of this study was to investigate changes of HRV indexes and heart rate (HR) during, and following a venipuncture procedure among healthy individuals” Kliszczewicz et al (2017).

Abstract:

BACKGROUND: Heart Rate Variability (HRV) has been shown to be influenced by several factors such as noise, sleep status, light, and emotional arousal; however, little evidence is available concerning autonomic responses to a venipuncture. The purpose of this study was to investigate changes of HRV indexes and heart rate (HR) during, and following a venipuncture procedure among healthy individuals.

METHODS: 33 healthy individuals (22.8 ± 0.56 yrs, 167 ± 1.56 cm, 69.5 ± 2.61 kg) participated. Testing included 10-minute HRV analysis prior to the venipuncture, a one-minute venipuncture procedure followed by a 10-minute analysis of HRV, a total recording of 21-minutes. The first 5-minutes of the 21-minute recordings were discarded, and the remaining 5-minutes of the resting segment was analyzed (PRE), and the last 5-minutes of the 21-minute recording (POST). The log transformation of the time domain Root Mean Squared of Successive Differences (lnRMSSD) and the frequency domains High Frequency (lnHF) and Low Frequency (lnLF) and LF/HF ratio (lnLF/HF) were used to quantify autonomic activity. HR was measured in 1-minute segments at 2-minutes prior (PRE), venipuncture (STICK), and post (P1-5).

RESULTS: HR significantly increased at STICK (p = 0.002), and fell below resting at P-5 (p < 0.001). lnRMSSD and lnHF increased significantly by POST (p < 0.001, p = 0.005). lnLF/HF ratio significantly decreased at POST (p = 0.047), while no significant changes occurred for lnLF (p = 0.590).

CONCLUSIONS: HRV and HR are influenced for ten-minutes following the venipuncture procedure. Practitioners and researchers who are interested in collecting blood and
measuring HRV need to account for the influence of the venipuncture.

Reference:


Thank you to our partners for supporting IVTEAM