Cardiovascular-disciplinary research
Cerebrovascular disease

GW23-e2691 | **HEART RATE VARIABILITY AND SUBJECTIVE RESPONSES IN PATIENTS WITH STROKE: INFLUENCE OF POSTURES AND RESISTIVE EXERCISES**

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Objectives Stroke survivors experience the loss of muscle mass and muscle atrophy changes on the paretic lower limbs as well as the non-paretic side. Traditional stroke rehabilitation intervention concerned whether the resistive exercise was available and safe for the patient with stroke. This study is aim to investigate the influence of postures and low intensity strengthening resistive exercises for heart rate variability (HRV) and subjective responses in the patients with stroke.

Methods Thirteen participants (eight men, five women; aged 50–70 years) were recruited. Registry eligibility criteria included: (1) clinical stroke diagnosis consistent with the WHO definition, confirmed by clinical assessment or imaging. (2) 3–6 months after onset of first stroke. (3) Mini-Mental Status Exam score large than 16. The experimental protocol was to carry out a different posture and two intermittent elastic resistive exercise training. Postures and band grades (Yellow and Blue Thera-Band bands) were randomised in each participant. Participants were required to perform the knee extension with 100% elongation band exercises at supine or sitting posture. There were 5 min resting periods after four resistive exercising training tasks. HRV signal was collected utilising the Polar heart rate monitor (Polar Electro, Finland). The signal processing of HRV were performed in fast Fourier transforms (FFT) using a HRV analysis software (Kubios HRV, 2.0, University of Eastern Finland, 2008). Heart rate, blood pressure, rating perceived exertion (RPE) and anxiety score (1–4) were recorded post each task and resting period.

Results We performed the repeated measure ANOVA to examine the variables among four condition tasks included two postures and two grade resistive exercises. The results indicated that there were significant interactions for LF/HF ratio of HRV ($F_{(1, 12)}=9.536$, $p=0.013$), RPE ($F_{(1, 12)}=13.656$, $p=0.002$), and anxiety level ($F_{(1, 12)}=10.343$, $p=0.004$) during four task conditions. There were no significant responses for LF/HF ratio, RPE, and anxiety level during all resting periods. Paired t-test was also computed to compare the differences among four task conditions. The results were shown that there was significant higher response for RPE ($p=0.043$) and anxiety level ($p=0.026$) than other task conditions during higher workload (Blue band) at sitting posture. To compare the responses during resting periods, there were no significant differences for all variables.

Conclusions This study results suggested that intermittent elastic resistive exercise can induce different HRV responses at LF/HR ratio and subjective responses but no significant cumulative effects after the following rests. Short-term low intensity strengthening exercises in sitting or supine postures is the feasible programme can be conducted for the patients with stroke under supervision.