

Influence of Glenohumeral Joint Approximation Technique on the Cardiovascular System in the Acute Phase after Stroke

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Abstract : Background and Aim: Autonomic imbalance is one of the complications for immobilized patients in the acute stage after a stroke. The predominance of sympathetic activity significantly increases cardiac activity. The technique of glenohumeral joint approximation may contribute in a non-pharmacological way to the regulation of blood pressure and heart rate in patients in this risk group. The aim of the study was to evaluate the effect of glenohumeral joint approximation on the change in heart rate and blood pressure in immobilized patients in the acute phase after a stroke. Methods: The experimental study bilaterally evaluated heart rate, systolic and diastolic pressure values before and after glenohumeral joint approximation in 40 immobilized participants (72.6 ± 10.2 years) in the acute phase after stroke. The experimental group was compared with 40 healthy participants in the control group (68.6 ± 14.2 years). An SpO2 vital signs monitor and a validated Microlife WatchBP Office blood pressure monitor were used for evaluation. Statistical processing and evaluation were performed in MATLAB R2019 (The Math Works®, Inc., Natick, MA, USA). Results: Approximation of the glenohumeral joint resulted in a statistically significant decrease in systolic and diastolic pressure. An average decrease in systolic pressure for individual groups ranged from 8.2 to 11.3 mmHg ($p < 0.001$). For diastolic pressure, the average decrease ranged from 5.0 - 14.2 mmHg ($p < 0.001$). There was a statistically significant reduction in heart rate ($p < 0.01$) only in patients after ischemic stroke in the inferior cerebral artery. There was the average decrease in heart rate of 3.9 beats per minute (median 4 beats per minute). Conclusion: Approximation of the glenohumeral joint leads to a statistically significant decrease in systolic and diastolic pressure in immobilized patients in the acute phase after stroke.

Keywords : Approximation technique, Cardiovascular system, Glenohumeral joint, Stroke

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