Autonomic impairment post stroke: a primary and/or secondary condition

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Impaired *autonomic* function, characterized by hyper-sympathetic and/or hypo-parasympathetic tone, is common in patients post stroke (PPS). Autonomic impairment associate with inferior functional outcome and mortality. Furthermore, PPS present sedentary behavior due to motor related impairments. Sedentary behavior associate with secondary autonomic impairment and cardiovascular disorders. The aim of the current study was to assess the impact of ischemic stroke and sedentary behavior post stroke on cardiac autonomic modulation at rest and during activity, and as compared to age and gender matched healthy controls. Methods: 70 PPS (25 up to 10 days (sub-group A), 30 up to 30 days (sub-group B) and 20 up to 3-month post event (sub-group C)) and 34 healthy controls assessed at rest and during pedaling on stationary bicycle. Cardiac autonomic system was assessed by heart rate variability (HRV) parameters. Results: PPS present higher HR at rest (stroke, 78 bpm ± 19 vs. control, 71 bpm ± 11, p-value0.05) and lower HRV values (for example; the standard deviation of RR intervals (SDNN), stroke; 32 ms ± 18 vs. 46 ms± 16 among the controls p0.01). In response to activity, significant interaction was noted, PPS present much less autonomic adaptation as compared to controls (for example; the RMSSD reduced by 6 ms ±12, vs. 15 ms ± 18, p0.01 respectively). No significant differences in HRV parameters at rest were noted within PPS sub-groups (for example; SDNN mean value at rest was 33 ms (Group-A), 36 ms (Group-B), 30 ms (Group-C)), and no significant differences in HRV parameters due to activity were noted (RMSSD change by 6, 6 and 4 ms in subgroup A, B and C respectively). Conclusion: The autonomic impairment in PPS is not deteriorating as a result of patients being less active for longer periods post stroke but as well not improving due to spontaneous recovery.