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Effect of yoga on cardiovascular autonomic activity and reactivity in essential hypertensive patients**Khadka R, Paudel BH and Karki P.**

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The exact cause of essential hypertension (EH) remains unknown. However, sympathetic hypertonicity, stress and stress-induced vasoconstrictor hormones are associated as major causes. EH may lead to myocardial infarction, stroke. Thus, EH patients have to take long-term therapy. Despite, long-term normalization of blood pressure by anti-hypertensive drugs, there exist autonomic dysfunction. Yoga known to decrease BP in EH patients, however, it is not much clear whether combined easy yogic practices improve cardiovascular autonomic regulation in EH patients. Thus, we studied the effect of yoga on cardiovascular activity and reactivity in EH patients. The study included 40 essential hypertensive patients. They were randomized into yoga (n=20, age 46.71±8.79 years) and control (n=20, age 44.8±7.47 years) groups. Yoga group practiced meditation, pranayama and few easy asanas for 40 min/day for one month. Control group did not practice yoga or any relaxation procedures. Cardiac autonomic activity was assessed using short-term heart rate variability (HRV) and reactivity using deep breathing (DBT), Valsalva Maneuver (VM), Handgrip (HGT) and Lying to standing (LST) tests in both groups at zero and after one month. Institutional Ethical Committee approved the study. Both groups had comparable age, height, weight, BMI, SBP, DBP, HR, and respiratory rate. SBP, DBP, HR, and BMI decreased in yoga group after one month of yogic practice. Time domain measures of HRV, which are markers of cardiac parasympathetic activity [SDNN: 29.8.9(18-33.9) vs 35.2(26.87-38.8) ms, p=0.013; rMSSD: 13.5(11.5-21.86) vs 37.4(30.9-43.3) ms, p=0.001] increased in yoga group as compared to control group after yoga. E:I ratio and Valsalva ratio, which are indicators of parasympathetic reactivity also increased in yoga group. Both parasympathetic activity and reactivity increased in EH patients after a month of yoga practice. It indicates that yoga increases cardiac autonomic modulation by increasing cardiac parasympathetic activity, which is better for cardiac health.

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