

Clinical and cardiac autonomic function in migraine patients

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Abstract

Migraine is associated with autonomic symptoms. The growing body of literature suggests that the dysfunctional autonomic nervous system might play a pivotal role in the pathogenesis of migraine. Thermal therapies have been hypothesized to modulate these changes and alleviate pain. However, data regarding the efficacy of hydrotherapy in migraine remain scant. We evaluated the effect of add on hydrotherapy procedure (a hot arm and foot bath with ice massage to head) in migraine patients. Forty chronic migraine patients fulfilling the International Classification of Headache Disorders II criteria were recruited from the neurology outpatient clinic. Patients were randomized to receive either hydrotherapy plus conventional pharmacological care (n = 20) or conventional medication only (n = 20). Hydrotherapy group received treatment with hot arm and foot bath (103°F to 110°F) and ice massage to head daily for 20 min for 45 days. Patients were assessed using headache impact test (HIT), visual analog scale for pain and cardiac autonomic function by heart rate variability (HRV) before and after intervention period. Migraine is a chronic debilitating disorder which is associated with significant morbidity. It is known to affect the productivity of work resulting in a substantial economic loss. Apart from this, migraine has a significant impact on quality of life of patients. The converging evidence from different experimental paradigm suggests that autonomic dysfunction may be the core aspect in the pathogenesis of migraine. The studies have shown an increased cardiac dysfunction and cardiovascular disease risk in migraineurs compared to nonmigraineurs. Abnormal activity of hypothalamic region as demonstrated by imaging studies might affect the autonomic activity. In particular, chronic sympathetic dysfunction may play a key role in the pathogenesis of this disorder. Although pharmacological interventions reduce the symptoms of migraine, a substantial number of patients does not improve with the medications. Several complementary and alternative medicine approaches such as relaxation training, biofeedback, and yoga are known to significantly reduce frequency and severity of migraine. Hydrotherapy is one of the oldest nonpharmacological treatments. Hydrotherapy is reported to be useful in many diseases. In particular, patients with rheumatoid arthritis, osteoarthritis, fibromyalgia, and back pain are shown to improve with hydrotherapy. It is known to cause initial local vasoconstriction followed by reflexive vasodilatation. Vasogenic inflammation and constrictions are hallmarks of migraine. Though, controlled studies are not available it is plausible that hydrotherapy may be useful in migraine patients. We designed this study to evaluate the efficiency of hydrotherapy in the form of hot arm and foot bath with ice massage to head in migraine patients in comparison with conventional treatment. In addition, we assessed the cardiac autonomic function using heart rate variability (HRV) before and after the treatment.