

P47

Impact of yoga-based lifestyle intervention for distal symmetric polyneuropathy associated with type 2 diabetes mellitus

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Background and aims: A strict glycemic control is the only established disease-modifying treatment for distal symmetric neuropathy (DSP), the commonest form of diabetic neuropathy (DN). Since stress is the underlying theme in the pathophysiology of type 2 diabetes mellitus (DM) and its attendant complications, we have studied the effect of yoga, a form of mind-body medicine, on selected outcome measures in patients with DSP.

Materials and methods: Type 2 DM patients attending the Diabetic Clinic of our hospital, presenting with features of DSP, were prospectively recruited, and randomized to either control group (n=22, mean age=52.4 years) or study group (n=25, mean age=52.2 years). Patients of both groups received an individualised drug-regimen tailored according to their clinical profile. Yoga group alone received supervised 1-hour yoga therapy sessions, 3 times a week, for 12 weeks. Each session consisted of joint-loosening practices, static postures, breath-body coordination practices, and breathing and relaxation techniques. The following parameters were assessed at baseline and after a follow-up period of 12 weeks: Diabetic Neuropathy Symptom (DNS) score, Diabetic Neuropathy Examination (DNE) score, pain score using a 10 cm visual analogue scale, right side sural sensory conduction study.

Results: In the yoga group, the following observations were made: significant improvement in DNS score (2.3 ± 1.0 to 0.6 ± 1.1 , $P < 0.0001$), DNE score (3.2 ± 1.9 to 1.9 ± 1.7 , $P = 0.0001$); vibration perception score (0.62 ± 0.28 to 0.38 ± 0.36 , $P < 0.0001$, n=50 i.e. number of legs tested), ankle jerk score (0.56 ± 0.41 to 0.42 ± 0.48 , $P = 0.005$, n=50); pain score among the subset of patients with painful DN (5.5 ± 1.7 to 1.4 ± 1.6 , $P < 0.0001$, n=17). Patients in the yoga group also reported an overall sense of well being. In the control group, no significant differences were observed with respect to any of the above parameters. Peak latency of sural sensory nerve action potential (SNAP) improved in both yoga (4.13 ± 0.47 ms to 3.86 ± 0.35 ms, $P \leq 0.0001$, n=22 i.e. number of recordable SNAPs) and control (4.25 ± 0.49 ms to 3.91 ± 0.51 ms, $P = 0.002$, n=22) groups. SNAP amplitude did not change significantly in either group. **Conclusion:** The results of our exploratory study show that the addition of yoga-based lifestyle intervention to standard medical management can confer additional benefits in terms of improving peripheral nerve abnormalities of DSP due to type 2 DM. Further studies are required to elucidate the underlying mechanisms.