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Sub-clinical neuromuscular dysfunction after envenoming by Merrem's hump-nosed pit viper (Hypnale hypnale).

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Objective: To investigate the sub-clinical neuromuscular dysfunction in *H. hypnale* (hump-nosed viper) envenoming.

Methods: Eighteen patients were included with specimen-authenticated *H. hypnale* envenoming who presented to the Teaching Hospital, Anuradhapura, Sri Lanka. All 18 had serial clinical and neurological examinations. Stimulated concentric needle single-fibre electromyography (sfEMG) of orbicularis oculi was undertaken as previously described[1] to evaluate neuromuscular dysfunction within two days of the bite. They were compared to 29 normal subjects. Patients with abnormal jitter were re-tested six weeks later.

Results: The 18 patients had a median age of 39 y (20-63 y) and 11 were males. Thirteen patients were bitten on feet and the rest were bitten on hands. All 18 patients had local effects and one-third had non-specific systemic symptoms. No patient had clinical features of neuromuscular paralysis such as ptosis, ophthalmoplegia or facial weakness. sfEMG found the median jitter values of patients were significantly higher than normal subjects (19.6 ± 13.0 μs compared with 15.6 ± 7.4 μs; $p<0.05$, Mann Whitney test). None of the patients or normal subjects had neuromuscular blocks. No association was noted between the percentage of abnormal fibres in patients and the bite-to-sfEMG time gap ($R^2=0.0194$). Three patients had median jitter values (31.4, 36.8 and 26.4 μs) higher than the maximum in normal subjects (23.0 μs), but all three returned to normal by six weeks.

Conclusion: H. hypnale envenoming causes sub-clinical neuromuscular dysfunction, despite patients not showing any clinically detectable neurotoxicity.

References: 1. Silva A, Maduwage K, Sedgwick M, et al. Neuromuscular Effects of Common Krait (Bungarus caeruleus) Envenoming in Sri Lanka. PLoS Negl Trop Dis. 2016;10(2): e0004368.