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## Futility of neostigmine in established neuromuscular paralysis in series of *Bungarus caeruleus* (Indian common krait) envenoming in a medical emergency

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### Background and Aim

Indian common krait (*Bungarus caeruleus*) toxin acts presynaptically in neuromuscular junction. Administration of neostigmine has not been found to be clinically effective in reversing neuromuscular paralysis. This case series aim to objectively prove futility of neostigmine in krait envenomation utilizing Train of Four (TOF) measurements.

### Methods

Four cases, with Indian common krait bite were enrolled during the monsoon season from the emergency department of PGIMER, Chandigarh. Cases were assessed clinically and objectively by quantitative monitoring of neuromuscular transmission by a hand held monitor, TOF<sup>3D</sup> (Mammendorf Institute for Physics and Medicine, Germany) which works on the principle of acceleromyography i.e. measurement of muscle acceleration. The stimulating electrodes were placed on the ulnar nerve on the volar side of the wrist. The acceleration transducer was placed over the distal phalanx of the thumb. The TOF stimuli was given with 50 mA and the result was measured in twitch height (TH) %. TOF values were measured after the ASV (anti snake venom) and post 2.5 mg parenteral neostigmine.

### Results

The mean age of patients was 40 years. All the patients had clinical evidence of neuromuscular paralysis and was requiring mechanical ventilation support. Average bite to ASV time was 7 hours. Mean duration of mechanical ventilation, duration of hospitalization were 3 and 5 days respectively.



**Table 1: TOF in form of twitch height (%)**

Cases	Post 10 vials of ASV	Post 20 vials of ASV	Post neostigmine
1	0	0	0
2	91	89	100
3	1	1	4
4	4	4	4
Mean	24	23.5	27

### **Conclusion**

Neither ASV nor neostigmine administration in Indian common krait envenomation with established neuromuscular paralysis result in significant improvement in the neurological status clinically or electrophysiologically.