P-77
Fatal carbamate poisoning with priapism and brain death in North-Central province of Sri Lanka

Jiri Hlusicka[1], Mudishya Abeywickrama[2], Sisira Siribadana[2], Prasanna Weerawansa[2], Sergey Zakharov[1]
[1] Department of Occupational Medicine, Charles University, and Toxicological Information Centre, General University Hospital, Prague, Czech Republic; [2] Department of Medicine, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

Objective: In developing countries, pesticides cause more deaths than infectious diseases; they are more often involved in suicide attempts [1]. We present a case of suicide with a carbamate with the uncommon condition of priapism, muscle jerks, cardiac arrest, and brain death.

Case description: A previously healthy 22-year-old male was transferred from the peripheral hospital (after primary decontamination and activated charcoal administration) to the emergency treatment unit of the Teaching hospital Anuradhapura. He had ingested 250 ml of "Marshal 250" containing 25% of carbosulfan in a suicide attempt. On admission, he had a cardiac arrest and after 10 minutes of resuscitation, advanced life support and repeated i.v. atropine boluses the spontaneous circulation was returned. The patient was intubated, and continued to receive atropine, midazolam and omeprazole. The following day myoclonic jerks of the upper extremities muscles were noted, and phenytoin i.v. bolus was administered followed by oral administration with good therapeutic effect. Renal and liver functions were normal, and non-contrast CT of the brain was normal. Approximately 48 hours after carbamate ingestion despite mechanical ventilation and atropine continuous infusion, the patient developed priapism, which lasted for 4 hours but responded to application of ice packs. On day 3 of hospitalization, another cardiac arrest occurred and brain death was diagnosed after unsuccessful resuscitation measures.

Discussion: The penal erection is controlled by the autonomic parasympathetic nervous system. The neurotransmitter acetylcholine released from the cavernous nerve terminals causes a release of nitric oxide, vasodilatation of the arteries in the penis, and filling of the corpora spongiosa and cavernosa with blood [2]. Carbamates are parasympathomimetics, thereby increasing both the level and duration of action of acetylcholine in cholinergic synapses [3]. Priapism in carbamate or organophosphate poisonings has not yet been described in the literature. However, long-lasting erection has been reported in poisonings caused by black widow spiders and scorpions bites whose toxins cause the release of acetylcholine [4,5].

References:

1. Eddleston, Michael, et al. "Pesticide poisoning in the developing world—a minimum pesticides list." The Lancet 360.9340 (2002): 1163-1167.
2. Andersson, Karl-Erik, and Gorm Wagner. "Physiology of penile erection." Physiological reviews 75.1 (1995): 191-236.
3. Colovic, Mirjana B., et al. "Acetylcholinesterase inhibitors: pharmacology and toxicology." Current neuropharmacology 11.3 (2013): 315-335.
4. Khan, Q. S., P. Tucker, and A. Lokhande. "Priapism: What cause: mental illness, psychotropic medications or poly-substance abuse?." The Journal of the Oklahoma State Medical Association 109.11 (2016): 515-517.
5. Südhof, Thomas C. "α-Latrotoxin and its receptors: neurexins and CIRL/latrophilins." Annual review of neuroscience 24.1 (2001): 933-962.