

The use of Visual Analog Pain Scales in Black Widow Spider Envenomation

Dear Editor,

Latrotoxicism is the painful syndrome of muscle cramps produced by black widow spider envenomation. This syndrome progressively worsens over several hours. There are no specific tests that assess the severity of Latrotoxicism or its course. We are presenting a case of Latrotoxicism that was successfully managed using a visual analog pain scale (VAS). In the Emergency Department, pain severity scales are widely used to assess pain and monitor treatment. Pain scales such as the VAS have been validated for headache, long bone fracture, and abdominal pain.

CASE REPORT

A 17-year-old male, weighing 150 lbs. was presented to the Emergency Department (ED) after stating that a spider had bitten him. The incident occurred while he was sleeping. He awoke from a sleep after feeling an itching and burning sensation on his back. He went to the bathroom where he noticed a red mark on his lower right back. The patient returned to his bed and found a dead black widow spider. Soon after the bite, he felt tightness in his chest and experienced difficulty in breathing. Upon presentation to the ED, he complained of severe cramping in both thighs and continued to experience difficulty in breathing. The patient reported that the tightness in his chest made speaking difficult. He denied any sensation of throat swelling, difficulty in swallowing, nausea, vomiting, or abdominal pain. A review of systems was otherwise negative. He was on no medications and had no drug allergies. Prior to the bite, the boy was healthy.

A physical examination of the young man showed a well-developed, alert, generally diaphoretic male in moderate distress that was secondary to pain. He was tachycardic with a heart rate of 102 beats/min, hypertensive with a blood pressure of 140/85 mmHg, and tachypneic with a respiratory rate of 20 breaths/min. His face was flushed and he had a facial grimace consistent with *facies latrotoxicissima*, the eyelids showing a slight bilateral ptosis. The patient spoke only during exhalation and in a grunting fashion. The abdomen was non-tender and rigid. The skin exam showed an irregular shaped, flat area of erythema (1.5 cm) with surrounding muscle fasciculations on the right lower back. No pilo-erection was noticed at the presumed bite site. The examination was otherwise unremarkable and within normal limits.

Course in the Emergency Department

The patient brought the spider with him to the ED, and it was confirmed to be a black widow spider. Cardiac monitoring was performed and an intravenous line was established. The patient received three doses of morphine (2 mg each) and a single dose of diazepam (5 mg) over a period of one hour, but reported minimal relief from the medications and appeared to be in moderate to severe distress. His blood pressure had increased from 140/85 mmHg to 160/95 mmHg, and his heart rate was 110–115 beats/min. The decision was made to proceed with antivenom treatment. An initial VAS was performed using a 100 mm rule and noted to be 33 mm. Antivenom was ordered and a skin test was prepared. A second VAS was performed 30 minutes later, and it showed a score of 30 mm. Vitals were taken and recorded: BP: 150/74 mmHg, RR: 16 bpm, HR: 110 bpm. After confirming a negative skin test for hypersensitivity, one vial of Merck *Latrotoxicus mactans* Antivenin was administered. The antivenom was infused over 60 minutes. The patient appeared to become much more comfortable approximately after one-half of the infusion was completed. The VAS score, immediately after the antivenom infusion, was 7 mm with a heart rate of 103 bpm and a blood pressure of 106/56. The patient stated that the pain was subsiding. He was monitored for two more hours and was eventually discharged without further complications. A follow up was performed via telephone five days after treatment. The mother of the patient reported that her son was doing well. He did not show any further signs of symptoms.

DISCUSSION

Envenomation by the black widow spider (genus *Latrotoxicus*) is a common occurrence across the continental U.S. and Hawaii. The clinical effects of *Latrotoxicus* envenomation include hypertension, diaphoresis, muscle cramping, weakness, and gastrointestinal complaints. Intractable pain is the primary reason a victim of *Latrotoxicus* envenomation reports to a health care facility (1). Many individuals describe the pain as nonspecific cramping of the extremities, back, and abdomen. Some compare the intensity of pain to nephrolithiasis or childbirth (1). It is the assessment of this nonspecific pain and its presence or absence that currently guides our treatment choices.

Titration of opioid pain medication is the typical initial treatment for black widow spider envenomation. If opiates do

not result in sustained relief, then the antivenom should be considered. Because patients' responses may vary, a systematic form of measurement would aid in the assessment of complex cases. We suggest that the VAS should offer a convenient, standardized tool for this measurement. The VAS pain score has been validated as a useful diagnostic for the assessment of changes in acute pain in multiple ED based studies, (2,3,4), including many that involve the musculoskeletal system (5, 6).

Our patient demonstrated a significant change in the VAS score after treatment with antivenom. The change was associated with a clinical improvement that was noticed by the patient and the treating physicians. We therefore propose its use in future treatment trials to improve the reliability and objectivity of pain assessment.

Thank you,

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