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Clinical Reviews

ENCOUNTERS WITH VENOMOUS SEA-LIFE

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□ **Abstract—Background: Sea-life with envenomation capabilities are quite abundant and diverse worldwide, being predominantly found in tropical waters. Most envenomations occur not as an attack, but as a result of self defense when the animal perceives danger; and often when locals or tourists are engaged in recreational activities. Most of these cases have only minor injuries, and few are fatal. Objectives: To describe the impact, clinical features, and management of life-threatening marine envenomations. Discussion: Recognition of the injury and identification of the responsible animal is crucial for quick and successful management. Medical professionals should be cognizant of presenting symptoms such as respiratory distress, muscle paralysis, or cardiovascular decompensation. For these patients, antivenom should be given immediately if available, followed by pharmacological and physical therapy to relieve symptoms and pain. If any foreign bodies are left at the site of the injury, they must be removed. Tetanus prophylaxis should also be considered in case of puncture, and if signs of early infection are present, broad-spectrum antibiotics should be administered. Conclusion: Management of envenomations from marine animals should be emphasized not only to health centers, but also to the general population, so that initial treatment can be started as soon as possible. Educational programs regarding risks and initial management for these incidents are also recommended to reduce the incidence and associated morbidity and mortality of the encounters. © 2011 Elsevier Inc.**

□ **Keywords—marine envenomations; jellyfish; stonefish; cone snail; blue ringed octopus; antivenom; stingray**

INTRODUCTION

Sea-life with envenomation capabilities are quite abundant and diverse worldwide; they are predominantly found in tropical waters. Each year, thousands of injuries from stingrays and jellyfish take place (1–3). Fortunately, few of these reported incidents are fatal (4–7). Envenomations from the scorpion fish family or mollusks are not as common as envenomations from jellyfish or stingrays. Venomous lesions from aquatic creatures vary greatly in presentation; they range from simple, mild, localized pain with erythema and papulovesicular eruption, to severe shock and death (Table 1). This article will review animals with envenomations that are associated with a high rate of morbidity and with serious, life-threatening events.

DISCUSSION

Coelenterates

There are approximately 10,000 species of marine coelenterates, of which more than 100 are considered dan-

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Table 1. Presentation, Complications, and Management of Various Life-Threatening Marine Envenomations

Offending Animal	Common Signs and Symptoms	Complications	Treatment	Antivenom
Box jellyfish (*Chironex fleckeri*)	Itchy red maculopapular rash, burning pain, edema, and the classical ladder-rung pattern lesion	Cardiotoxic effect, nerve palsy, hemolysis, cardiopulmonary decompensation, shock, and death	Vinegar irrigation, hot water shower as tolerated for 10–20 min, pain management (including local use of cold packs/ice and opiates), and supportive care. Do not use pressure immobilization bandages	CSL-antivenom. If there is cardiac or respiratory decompensation give a minimum of 1 ampule of antivenom i.v. (20,000 units diluted 1:10 with normal saline). Up to 3 ampules may be given consecutively if response is inadequate in addition to magnesium sulfate bolus i.v.
Irukandji jellyfish (*Carukia barnesi*)	Severe abdominal, chest, limbs, or back pain; generalized muscular pain, hypertension, tachycardia, vomiting, nausea, diaphoresis, piloerection, and local erythema	Hypertensive crisis, hemodynamic decompensation with abnormal ECG and elevated troponins, cardiac failure, and death	Hot water shower as tolerated for 10–20 min, vinegar irrigation, antihypertensive therapy, magnesium sulfate i.v., and pain management (including local use of cold packs/ice and opiates). Do not use pressure immobilization bandages	Unavailable
Portuguese man-of-war (*Physalia physalis* and *Physalia utriculus*)	Local sharp pain immediately after the sting, followed by an erythematous maculopapular linear rash, local edema, and numbness	Skin necrosis, cardiorespiratory collapse, and rarely death	Remove tentacles, preferably with forceps or gloved hand. Avoid using vinegar or methylated spirits. Hot water (45°C) immersion for 10–20 min preferred over local application of ice-packs for pain control. Topical anesthetics can be considered after successful removal of all tentacle fragments. Use oral or parenteral analgesics if pain persists	Unavailable
Cone snail (*Conus geographus*)	Severe pain at site of sting, muscular paralysis	Respiratory arrest in 40 min to 5 h	Urgent intubation and critical care management	Unavailable
Blue-ringed octopus (*Hapalochlaena lunulata*)	Flaccid paralysis and hypotension	Respiratory failure and death	Supportive care including mechanical ventilation	Unavailable
Stonefish (Family: *Scorpaenidae*)	Severe pain and edema at site of sting, headaches	Weakness, syncope, dyspnea, hypotension, and hallucinations	Hot water immersion as tolerated, NSAIDs, local analgesia, debridement if needed, and prophylaxis with antibiotics	CSL stonefish antivenom. Administration of 2000 units for every 1–2 punctures, with a maximum of 3 ampules. (Its use may also be beneficial in other Scorpaenidae envenomations)
Stingray (Family: *Dasyatidae*)	Pain and laceration at puncture site, nausea, vomiting, muscle cramps	Hypotension, dysrhythmia, arterial lacerations, thorax, and spinal cord trauma	Hot water immersion as tolerated, systemic and local analgesia, debridement, and prophylaxis with antibiotics	Unavailable

CSL = Commonwealth Serum Laboratories; i.v. = intravenous; ECG = electrocardiogram; NSAID = non-steroidal anti-inflammatory drug.