Systematic Review Snapshot

TAKE-HOME MESSAGE

Hot-water application may relieve the pain from a bluebottle jellyfish sting better than ice packs; however, this is based on a single trial. There is insufficient evidence to recommend for or against other pain treatment regimens for jellyfish stings.

METHODS

The authors conducted an electronic search of MEDLINE, EMBASE through Ovid SP, Web of Science (all databases 1899 to October 21, 2013), and CENTRAL (1980 to October 2012, with a repeated search in 2013), as well as a manual search of reference lists, guidelines, and the World Health Organization International Clinical Trials Registry Platform, all without language, publication date, or publication status restrictions.

STUDY SELECTION

Only randomized controlled trials that compared treatment of a sting to any other active treatment or nonactive treatment were included. A jellyfish sting was simply defined as anyone who reported to be stung by a jellyfish. Any trial reporting patients stung by a jellyfish was eligible for trial inclusion. Primary outcomes included reduction of pain by 50% within 6 hours and adverse events from treatment. Active treatments in the trials included hot-water immersion or application, ice packs, intravenous magnesium sulfate, topical acetic acid, and topical papain meat tenderizer.

DATA EXTRACTION AND SYNTHESIS

Two reviewers independently screened the titles and abstracts

What Is the Most Effective Treatment for Relieving the Pain of a Jellyfish Sting?

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Results

Reduction in pain by at least 50% on a visual analog scale (VAS) after bluebottle jellyfish stings.*

Duration and Intervention	n/N	Risk Ratio (95% CI)	NNT (95% CI)
10 min			
Hot water (45 °C [113°F])	26/49	1.7 (1.0–2.7)	4.7 (2.5–54.4)
Ice packs	15/47		
20 min			
Hot water (45 °C [113°F])	39/45	2.7 (1.7–4.2)	1.8 (1.4–2.7)
Ice packs	14/43		

n, Total with pain relief; *N*, total treated; *CI*, confidence interval; *NNT*, number needed to treat.
*Results from a single study.[1]

After review of 489 studies, 7 randomized studies with a total of 435 patients were included in the systematic review. These studies enrolled patients stung by jellyfish from the United States, from Australia, and in a laboratory setting. The stings were from *Physalia* (bluebottle), *Carukia* species (Irukandji syndrome), and *Carybdea alata* (Hawaiian box) jellyfish. Six of the 7 trials were judged as having a high risk of bias, and many trials did not involve blinding because of the nature of the treatments. Meta-analysis was not possible because of varied data presentation and a wide range of treatments without standardized application. The results of this review are therefore based on a single study at high risk of bias.[1] Adverse events because of treatment were not reported in any trial.

Commentary

The treatment of jellyfish stings has traditionally focused on relief of pain by deactivation of nematocysts and

and extracted data from each study. In cases of uncertainty about the results, analysis, or assessment of bias, the original study authors were contacted. All disputes involved a third reviewer until consensus was reached. The I^2 statistic and Cochran Q statistics were used to assess heterogeneity. A formal sensitivity analysis was not conducted.

neutralization of venom. With treatments having multiple possible mechanisms of action and no defined dosing, the current treatment of jellyfish stings remains poorly defined. Also, different international organizations recommend different first-line treatments. The International Life Saving Federation recommends topical ice packs for pain relief for all stings and topical acetic acid (4% to 5%) for deactivation of remaining nematocysts only from box jellyfish stings.[1] In bluebottle jellyfish, application of acetic acid may promote further nematocyst discharge.[2] The Australian Resuscitation Council 2010 recommendations for envenomation and jellyfish stings provide geographic guidelines based on tropical Australian (box and Irukandji-causing species) and nontropical stings. Tropical Australian stings should be treated with cold packs for pain relief, followed by acetic acid application, except in bluebottle jellyfish, in which acetic acid should be avoided.[3] For nontropical stings, hot-water immersion for 20 minutes is recommended according to the evidence by Loten et al.[4]

Although multiple consensus guidelines have recommendations on treatments, the diversity of jellyfish species and the lack of adequately studied treatment regimens do not allow generalizable evidence-based recommendations for pain relief. This review's conclusions are based on only a single study about bluebottle species and treatment for other species with differing water temperatures, acetic acid, or other active agents and cannot be abstracted from the evidence. According to the single study included in this review, hot-water application may be more effective in relieving acute pain after bluebottle jellyfish stings than ice packs.

Editor's Note: This is a clinical synopsis, a regular feature of the *Annals*' Systematic Review Snapshot (SRS) series. The source for this systematic review snapshot is: Li L, McGee RG, Isbister G, et al. Interventions for the symptoms and signs resulting from jellyfish stings. *Cochrane Database Syst Rev*. 2013;12:CD009688. http://dx.doi.org/10.1002/14651858.CD009688.

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2. Flecker H. Irukandji stings to North Queensland bathers without symptoms of wheals but with severe general symptoms. *Med J Aust*. 1952;2:89-91.
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Michael Brown, MD, MSc, Alan Jones, MD, and David Newman, MD, serve as editors of the SRS series.