

Cold-Induced Anaphylaxis

A 9-year-old girl had generalized urticaria and syncope while swimming in cold water. She was immediately removed from the water and regained consciousness. She had a preceding 2-year history of multiple episodes of urticaria while swimming in unheated outdoor swimming pools and on exposure to cold weather. She did not have symptoms if the water was heated. There was no family history of cold-urticaria. An ice cube provocation test was performed (Figure 1), that resulted in a wheal within 3 minutes (Figure 2). Repeat testing with the prior administration of Loratadine resulted in erythema without wheal formation (Figure 3). Secondary causes of cold-induced urticaria such as the presence of viral infection or cryoglobulins were excluded. The management of her condition involved avoid-



Figure 1. Application of an ice cube on the volar surface of the forearm.



Figure 2. Formation of a wheal 2 minutes after application of ice.



Figure 3. Mild erythema but with absence of a wheal 10 minutes after the application of ice with the prior ingestion of an antihistamine.

ance of swimming in cold water, daily administration of Loratadine, the carriage of an Epi-pen Autoinjector, and the wearing of a MedicAlert bracelet.

Cold-induced urticaria is a rare but potentially life-threatening condition, and cases of drowning have been reported.¹ The mean age of diagnosis is 18 year, often with a delay in the diagnosis by months to years.² Cases have been described in infancy.³ The condition can be classified into familial and acquired forms, with acquired cases further divided into primary and secondary causes.⁴ Treatment focuses on the prevention of episodes, the use of prophylactic antihistamines, and the carriage of adrenaline. Nonsedating antihistamines, with their fewer side effects, appear to be an effective alternative to the more traditionally used cyproheptadine or doxepin.⁵ There appears to be an inverse relationship between the minimum time of cold stimulus necessary to induce a confluent wheal (CSTT) and the clinical severity of symptoms. Individuals with hypotensive episodes usually have a CSTT of less than 3 minutes.⁶ The duration of symptoms for primary cold-induced urticaria ranges from a few months to more than 20 years.^{2,6} There is a correlation between increasing CSTT measurements and improving tolerance to natural cold stimulation⁴; hence, it is a useful test to perform serially.

References available at www.jpeds.com.

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