

# Aquagenic Pruritus: Two Cases That Resolved with Histamine<sub>1</sub> and Histamine<sub>2</sub> Antagonists

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**P**rior to the 1980s, cases of aquagenic pruritus were not commonly discussed in medical literature. Since that time, more cases of aquagenic pruritus have been reported, possibly because of a greater awareness of this disorder. Aquagenic pruritus is a water-induced disorder without observable skin manifestations. Patients may experience a prickling, burning, or pruritic sensation that develops shortly after bathing or showering with water of any temperature. This article presents two case reports that discuss successful treatment for aquagenic pruritus using histamine<sub>1</sub> (H<sub>1</sub>) and/or histamine<sub>2</sub> (H<sub>2</sub>) antihistamines. Other possible treatment modalities are also discussed.

### CASE ONE PRESENTATION

A 39-year-old woman presents with a 10-year history of pruritus after bathing or showering. The patient was referred to the dermatologist by her primary care physician because her symptoms have been occurring with greater frequency. The patient denies any observable skin manifestations associated with the pruritus. The pruritus initially started on her legs and gradually began to spread upward toward her trunk and upper extremities. The patient states that symptoms generally regress within 1 hour. Loratadine (10 mg, once daily) only partially relieves her symptoms, and the patient does not take other medications. The pruritus occurs regardless of water temperature, and the patient denies allergies to soaps or shampoos. Initial laboratory work-up reveals a negative  $\beta$ -human chorionic gonadotropin value, normal results on tests of hepatic function, normal serum levels of iron, and normal results on a complete blood count.

The dermatologist prescribes cimetidine (100 mg, twice daily) and instructs the patient to continue loratadine (10 mg, once daily). Within 1 week, the patient notices a significant reduction in symptoms. At 6-month follow-up, the patient remains asymptomatic. The patient is instructed to use both of these medications on an as-needed basis for the prevention of aquagenic pruritus.

### CASE TWO PRESENTATION

A 53-year-old man presents to his primary care physician with a long-term history of pruritus after exposure to bathing, showering, or swimming. He has had these symptoms since he was a young child. The patient had never previously consulted his primary care physician about the pruritus, but he had previously presented to a dermatologist. Recently, however, he has experienced a significant increase in intensity of symptoms. The patient states that he develops a generalized pruritus throughout his body within minutes of contact with water.

The patient's medical history is significant for hypertension and mild peripheral vascular disease of the legs. His current medications are doxazosin mesylate and verapamil. He has no known allergies to drugs or other environmental agents. The patient was previously treated with triamcinolone cream, which provided partial relief.

Prevention of the pruritus is later achieved by taking hydroxyzine (25 mg, three times daily), an H<sub>1</sub> blocker, prescribed by another dermatologist. However, symptoms consistently return within 1 or 2 days if hydroxyzine is not taken.

### DISCUSSION

#### Pathophysiology

It has long been established that histamine is a well-known mediator of pruritus. In the first case report, the combination of H<sub>1</sub> (loratadine) and H<sub>2</sub> (cimetidine) blockers significantly reduced the pruritus within 1 week. The patient was asymptomatic 6 months after the introduction of both medications. In the second case report, an H<sub>1</sub> blocker (hydroxyzine) alone was

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sufficient in preventing the pruritic symptoms. A study by Greaves et al<sup>1</sup> also revealed that an H<sub>1</sub> antihistamine with or without an H<sub>2</sub> antihistamine significantly reduced the symptoms of pruritus.

Further evidence suggests that histamine release alone is unlikely to be responsible for the symptoms of aquagenic pruritus. Steinman et al<sup>2</sup> report that 47% of patients with aquagenic pruritus in their study noted symptomatic relief after taking H<sub>1</sub> and/or H<sub>2</sub> antihistamines. Results from other investigators indicate that acetylcholine may play a role in aquagenic pruritus.<sup>1</sup> Topical hyoscine (scopolamine), an acetylcholine antagonist, has shown promise by relieving the symptoms involved in this skin disorder.<sup>1</sup> Another factor that must be considered in the pathophysiology of aquagenic pruritus is that cutaneous fibrinolytic activity is elevated both before and after water contact. Evidence suggests that acetylcholine or histamine may be one of the causes for the elevated levels of cutaneous fibrinolytic activity.<sup>3</sup> Finally, Lotti et al<sup>4</sup> recently reported that capsaicin cream has been successful in reducing symptoms when applied to the skin both before and after water contact. Capsaicin is thought to induce the release of neuropeptides, such as substance P, which may play a role in treating pruritus.<sup>4</sup> More investigations must be performed to identify the correct pathophysiology involved in aquagenic pruritus.

#### Diagnosis

Patients with aquagenic pruritus frequently present with symptoms as previously described by the patients in these case reports (ie, symptoms occur within minutes after bathing or showering regardless of water temperature, no observable skin manifestations occur, symptoms generally regress within 1 hour). As noted previously, aquagenic pruritus is a water-induced skin disorder without visible skin changes. Clinicians must first exclude other possible internal disorders, such as polycythemia rubra vera, liver disease, physical urticaria such as cold or heat, and possible side effects from medications that may produce similar discomfort.

#### Treatment

In addition to H<sub>1</sub> and H<sub>2</sub> antagonists, other treatment modalities are promising. Alkalinization of water with sodium bicarbonate or, more recently noted, intramuscular triamcinolone may provide some relief of symptoms.<sup>5</sup> Other studies have shown that psoralen photochemotherapy and ultraviolet B light therapy may help to control the pruritic symptoms. However, the relief of pruritic symptoms was not always complete in many of these patient samples.<sup>6</sup> These treatments may possibly be used in conjunction with H<sub>1</sub> and/or H<sub>2</sub> blockers.

#### SUMMARY

Since the 1980s, clinicians are reporting more cases of aquagenic pruritus. Antihistamines have helped both of the patients discussed in these case reports. Other studies also report that symptoms are relieved by using H<sub>1</sub> and/or H<sub>2</sub> antihistamines. However, other patients may require additional treatment strategies because of the poorly understood pathophysiology involved in aquagenic pruritus. Possibly, H<sub>1</sub> and/or H<sub>2</sub> blockers in combination with other treatment agents may be needed.

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