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Differential diagnosis between exercise-induced anaphylaxis and cholinergic urticaria

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Dear editor,

In the past, both cholinergic urticaria and exercise-induced anaphylaxis were called physical urticaria. Currently, cholinergic urticaria belongs to a group called chronic induced urticaria, and exercise-induced anaphylaxis is separated from other conditions inherent to the individual, in an adverse response to the practice of aerobic exercises.[1]

The prevalence of exercise-induced anaphylaxis is estimated at approximately 3% of the total anaphylaxis, and cholinergic urticaria in 5% of the total chronic urticaria, and 30% of the chronic induced urticaria.[2] The etiopathogenesis of both is still unknown, although they have in common a greater mast cell cytoplasmatic degranulation hyperreactivity. [3]

Different clinical presentations

Aerobic exercises can trigger four different modalities of anaphylaxis (Table 1). The main differences between exercise-induced anaphylaxis and cholinergic urticaria are listed in Table 2.[1-3]

Aerobic exercise is enjoyable, safe, and healthy, and therefore should always be encouraged. Physical desensitization with progressive and incremental exercises can be successful and occasionally proposed.[4]

Universal practice of aerobic exercises and of numerous sports makes it increasingly necessary to update the so-called “physical allergies”.[5]

Table 1
Exercise-induced anaphylaxis

Food-independent/Primary/Idiopathic
Food-dependent with specific IgE
Food-dependent without specific IgE
Drug-dependent

Table 2
Exercise-induced anaphylaxis and cholinergic urticaria

Characteristics	Exercise-induced anaphylaxis	Cholinergic urticaria
Symptoms	Flushing, warmth, malaise, diffuse pruritus, urticaria with large and coalescing wheals, angioedema, gastrointestinal symptoms, hypotension, syncope, laryngeal edema, anaphylaxis, and rarely asthma. Clinical history is very important for the diagnosis	Urticaria with small, punctate wheals (1-3 mm in diameter), exhibiting an adjacent erythematous and coalescing reaction ("fried egg" appearance), induced actively by exercise and/or passively by increasing body temperature (hot baths/ Hubbard bathtub, heavy clothing, spicy foods, and emotional stress)

Table 2 *(continuation)*
Exercise-induced anaphylaxis and cholinergic urticaria

Characteristics	Exercise-induced anaphylaxis	Cholinergic urticaria
Risk of anaphylaxis	Very common	Extremely rare
Provocation tests	Treadmill exercise for 30 minutes after eating suspicious foods or medications	Treadmill exercises for 30 minutes, followed by passive warm-up, inducing an increase in body temperature (usually less than 1°C). It can therefore be considered a variant of heat-induced urticaria
Management	Rule out associated food allergy. Measure baseline serum tryptase. Exercises always accompanied, and close to Hospital Emergencies. Medical alert bracelet. Carry activated mobile phone. Do not exercise 4-6 hours after eating or taking nonsteroidal anti-inflammatory drugs. Avoid aerobic exercise when the weather is very cold, hot or humid. Cease exercise immediately after symptoms begin. Omalizumab may be indicated in refractory cases	Symptomatic treatment with second-generation non-sedating antihistamines. Increase, if necessary, the dose of these antihistamines up to four times the usual recommended dosage. Omalizumab may be indicated in refractory cases
Need for auto-injectable epinephrine	Yes	No
Long term prognosis	Good	Good

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