

## E10: Minor Allergy

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Updated: December 07, 2020

Reviewed:

### Introduction

Allergic reactions are a hypersensitivity response by the immune system to an allergen, and can range from localized urticaria to life-threatening anaphylaxis. Minor allergic reactions are typically localized to the integumentary system, and are not systemic reactions (as observed in anaphylaxis). Minor allergies present with urticaria and pruritus, and can be managed by antihistamine administration in the pre-hospital environment for patient comfort.

Refer to the [E09: Anaphylaxis](#) for patients with suspected allergic reaction presenting with concurrent respiratory, cardiovascular, or gastrointestinal complaints.

### Essentials

- Minor allergic reactions involve the integumentary system with the presence of urticaria and occasionally mild localized edema. Minor reactions do not involve any other system (e.g. cardiovascular, respiratory, or gastrointestinal systems).
- Urticaria consists of transient wheals on the skin (raised areas of various sizes, with or without erythema) with pruritus and/or burning sensations. If a patient presents with dermatologic symptoms plus any of hypotension/hypoperfusion, angioedema, respiratory distress, and/or gastrointestinal upset, more aggressive intervention is required.
  - → [E09: Anaphylaxis](#)
- Minor allergic reactions are typically managed by removal of the allergen (e.g. removing a stinger, or washing a topical lotion from the skin using soap and water) and antihistamine administration (e.g. diphenhydramine).
- EpiNEPHrine should not be administered in a minor allergic reaction that involves only the integumentary system.

### Additional Treatment Information

- Oral antihistamines are typically sufficient for management of minor allergic reactions. If PO medications cannot be tolerated, diphenhydramine may be administered IM or IV.
- Minor allergies have the potential to exacerbate chronic respiratory illnesses (e.g. asthma or COPD). Patients with a history of respiratory illness should be assessed for worsening of their condition and treated accordingly.
- Patients may have an existing treatment regime utilizing over-the-counter and/or prescribed antihistamines. Additional antihistamines should not be administered if the patient has taken antihistamines prior to paramedic arrival due to the possibility of potentiation.

### Referral Information

- While most cases of isolated urticaria are self-limiting and will resolve without treatment, patients with minor allergic reactions have potential to progress to life-threatening anaphylaxis.
- Anaphylaxis onset may be delayed several hours after exposure to an allergen. Therefore, until referral pathways to alternate sub-acute pathways are developed, all patients with minor allergy symptoms should be transported to the emergency department for evaluation.

### General Information

- A minor allergic reaction is caused by an exaggerated immune response to an allergen that results in the degranulation of mast cells and basophils. Release of inflammatory mediators (primarily histamine) from cells in the dermal layer of cutaneous tissue may result in urticaria, erythema, and discomfort.
- Many minor allergic reactions are mediated by immunoglobulin E (IgE) in response to environmental allergens (e.g. insect stings, pollen), but acute urticaria may result from release of inflammatory mediators due to infection or spontaneous activation that is not IgE-mediated in approximately 50% of cases. Regardless of the underlying cause, treatment with antihistamines remains effective.

- Four types of histamine receptors (H1, H2, H3, and H4) are present in the body, with H1 and H2 receptors being most relevant to minor allergic reactions. First-generation H1 antagonists (e.g. diphenhydramine) cross the blood-brain barrier more readily and therefore are more likely to have sedative effects. Second-generation H1 antagonists (e.g. loratadine) are equally efficacious to first-generation H1 antagonists. Second-generation H1 antagonists are lipophobic and therefore less able to cross the blood-brain barrier, leading to lesser risk of sedative effects. Caution: first-generation H1 antagonists may cause a decreased level of consciousness with a potential to limit recognition of a progression to anaphylaxis.
- H2 antagonists (e.g. ranitidine) will not independently resolve urticaria, but may potentiate the effect of H1 antagonists and should be considered for urticaria causing severe distress.
- H1 antagonists (e.g. diphenhydramine) are not effective in resolving angioedema, cardiovascular, gastrointestinal, or respiratory symptoms in anaphylaxis, and therefore are considered a second-line therapy at best. **First-line therapy in anaphylaxis remains the administration of epinephrine.**

## Interventions

### First Responder

- Monitor patient for signs of deterioration into anaphylaxis
  - → [E09: Anaphylaxis](#)
- Remove allergen if practical (e.g. scrape off any stinger(s) / wash off topical allergens with soap and water)

### Emergency Medical Responder – All FR interventions, plus:

- The patient's personal oral antihistamines may be taken according to manufacturer instructions
- The patient's prescribed inhalers may be taken as directed for known respiratory allergens, if required

### Advanced Care Paramedic – All FR, EMR, and PCP interventions, plus:

- Consider [Diphenhydramine](#) to relieve integumentary symptoms and decrease histamine response

### Critical Care Paramedic – All FR, EMR, PCP, and ACP interventions, plus:

- Consider H2 antihistamine for additional relief of urticaria

## Evidence Based Practice

[Minor Allergic Reaction](#)

## References

1. Alberta Health Services. AHS Medical Control Protocols. 2020. [\[Link\]](#)
2. Frigas E, et al. Acute urticaria and angioedema: Diagnostic and treatment considerations. 2009. [\[Link\]](#)
3. Jutel M et al. Histamine, histamine receptors and their role in immune pathology. 2009. [\[Link\]](#)
4. Lin RY et al. Improved outcomes in patients with acute allergic syndromes who are treated with combined H1 and H2 antagonists. 2000. [\[Link\]](#)
5. Randall KL et al. Antihistamines and allergy. 2018. [\[Link\]](#)
6. World Allergy Organization. Allergy to Insect Stings and Bites. 2015. [\[Link\]](#)

