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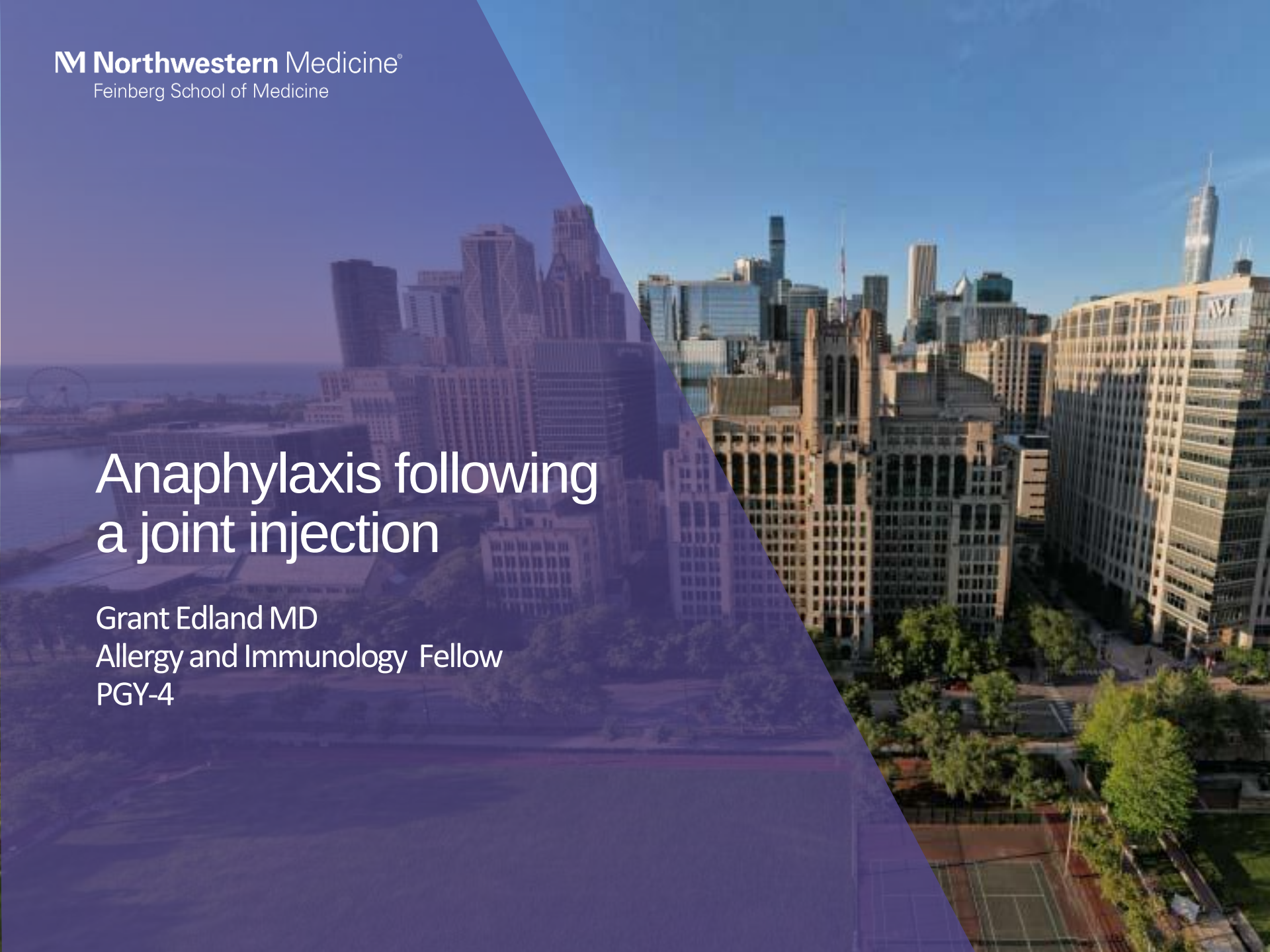

Anaphylaxis following a joint injection

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PGY-4

Disclosures

None

Introduction

Identifying an offending agent after anaphylaxis, where multiple medications were administered, can be challenging.

We present a case of an anaphylactic reaction after an intra-articular injection and a stepwise approach to identifying the culprit agent.

Case Presentation

Patient: 69-year-old female

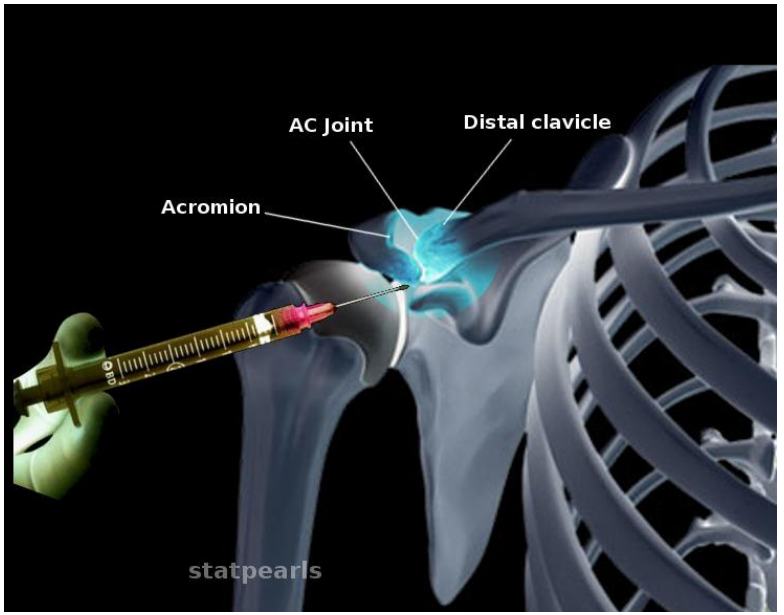
HPI: History of multiple drug allergies presented to the orthopedics clinic for a left subacromial bursa joint injection.

The patient received:

Lidocaine 1%

Bupivacaine 0.25%

Triamcinolone acetonide 10 mg



Merrigan. StatPearls Publishing; 2023

Case Presentation

While walking home, she experience diffuse itching of her hands, head, genitals, and feet.

She arrived at home to the lobby, walked into the elevator, and fainted. EMS was called. No medications were given in the field.

Case Presentation

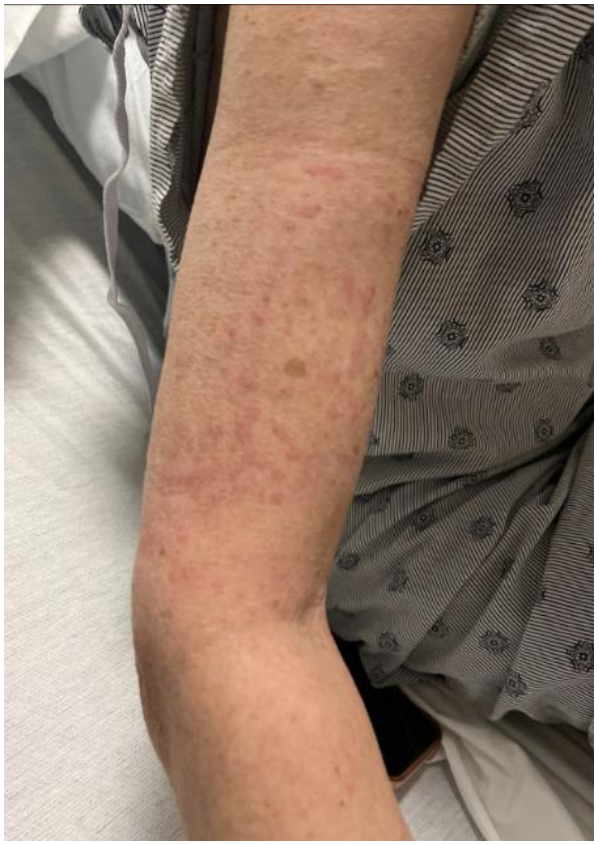
In the emergency department, she was noted to have a diffuse urticarial rash and angioedema.

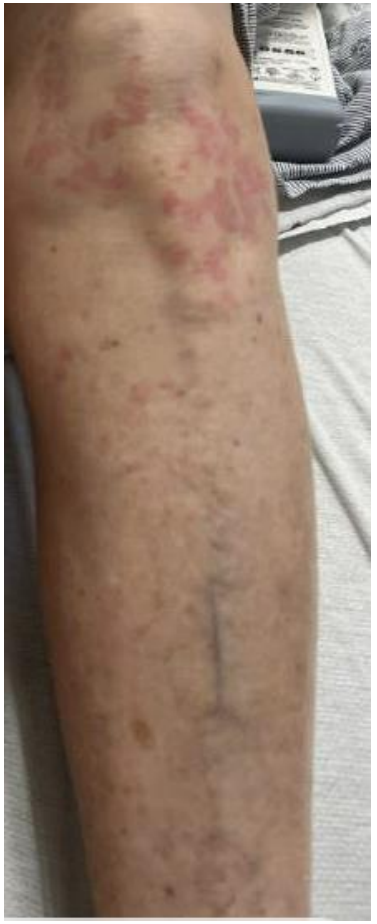
Initial BP was 94/52 mmHg but rapidly decreased to 67/42 mmHg. HR 55.

She was administered

- IM epinephrine 0.3 mg
- Diphenhydramine 50 mg
- Famotidine 20 mg

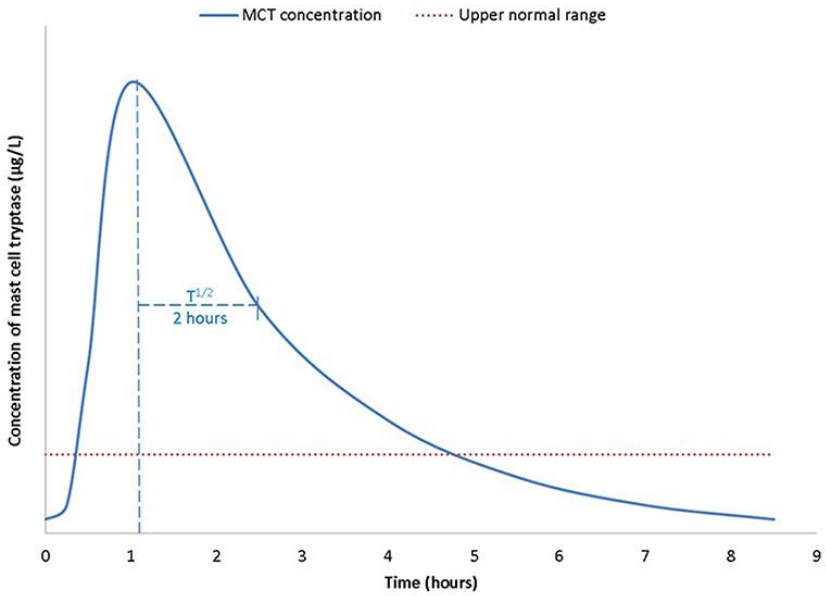
Blood pressure improved to 100/55 mmHg. HR 70.





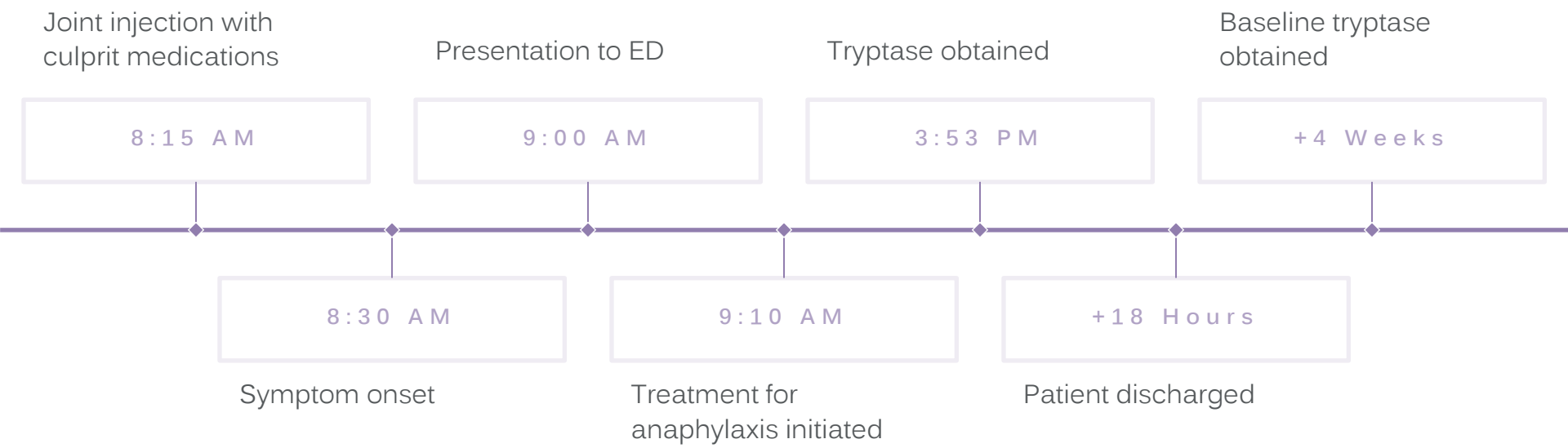
Case Presentation

- A tryptase level was 29.9 mcg/L (baseline 1.9 mcg/L).
- She was discharged the following day on cetirizine 10 mg daily for lingering cutaneous symptoms.



Beck et al., Front. Immunol., 2019

Timeline


Joint injection with culprit medications
8:15 AM
8:30 AM
Symptom onset
Presentation to ED
9:00 AM
9:10 AM
Treatment for anaphylaxis initiated
Tryptase obtained
3:53 PM
+18 Hours
Patient discharged
Baseline tryptase obtained
+4 Weeks

Case Presentation

Allergy clinic follow-up testing

Skin Test Results

Full Strength Lidocaine Prick: 0mm/0mm

Full Strength Bupivacaine Prick: 0mm/0mm

Saline Prick: 0mm/0mm

Histamine Prick: 3mm/8mm

Case Presentation

METHYLPREDNISOLONE

-Prick Full Strength: 0mm/0mm

-Intradermal 1:100: 0mm/0mm

-Intradermal 1:10: 0mm/0mm

TRAMCINOLONE

-Prick Full Strength: At 60 min mark, site of triamcinolone full strength prick showing wheal and flare 2mm/5mm.

-Intradermal 1:100: 7mm/10mm

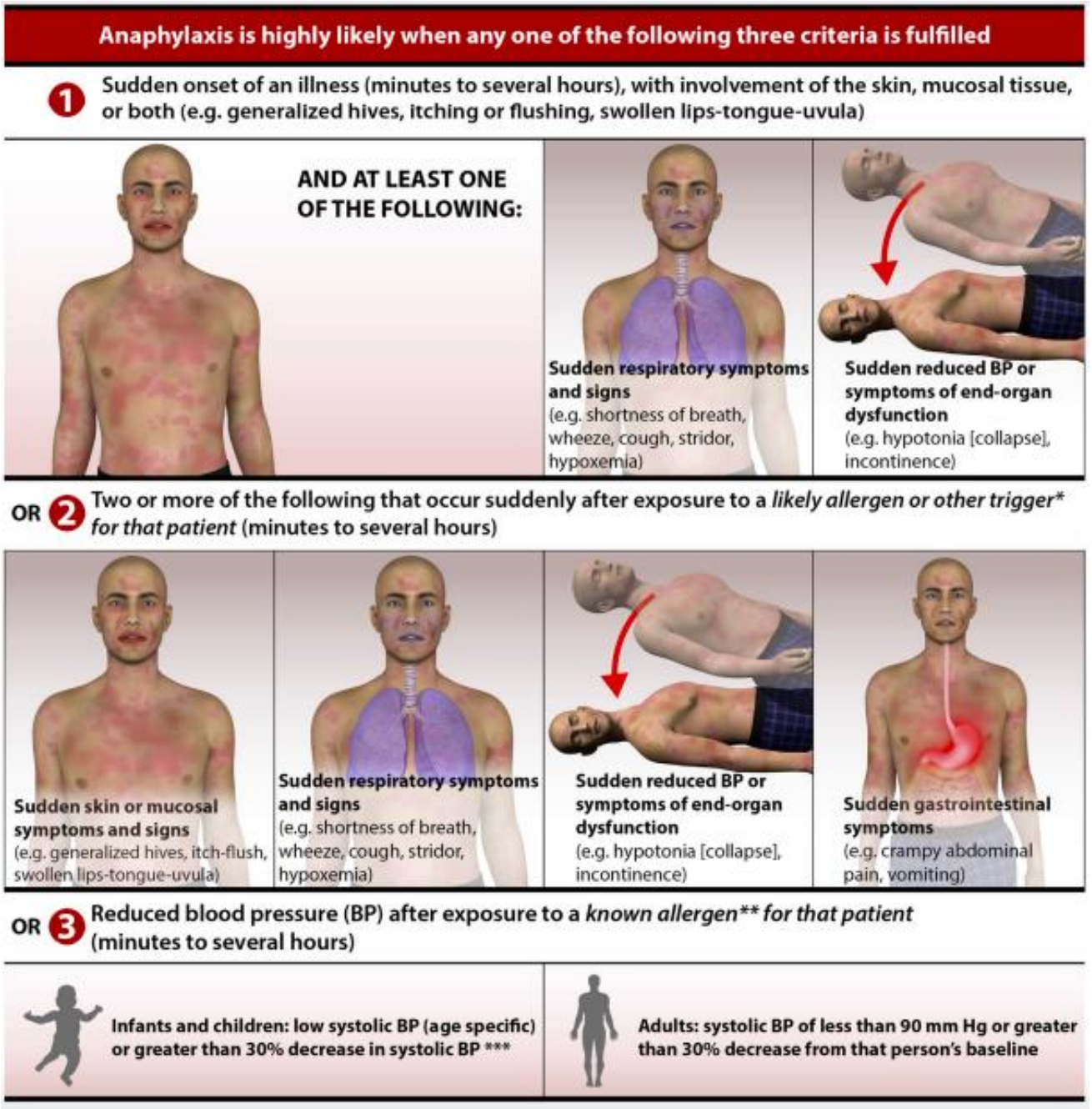
-Intradermal 1:10: Not performed

Controls:

Saline Prick: 0mm/0mm

Saline Intradermal: 0mm/0mm

Histamine Prick: 5mm/16mm



Shaker et al. JACI, 2020

Discussion

- Hypersensitivity reactions to steroids are broadly divided into two categories:
  - Immediate reactions, typically occurring within one hour of drug administration
  - Delayed reactions, which occur more than an hour after drug administration, usually days after
- There is a lack of literature on corticosteroid allergy
  - Mostly case reports

Delayed reactions to corticosteroids

- Allergic contact dermatitis is the most common delayed hypersensitivity reaction
  - Localized or generalized eczematous rash
- Ocular preparations
  - Conjunctivitis, eczema of the face, eyelids, and periocular areas
- Intranasal corticosteroids
  - Nasal congestion, pruritus, angioedema, perioral dermatitis, and soreness of nose to perforation of the nasal septum
- Inhaled corticosteroids
  - Pruritus, erythema, perioral dermatitis, angioedema, and dysphagia

Immediate hypersensitivity reactions to corticosteroids

- IgE-mediated hypersensitivity reactions to corticosteroids are rare but have been reported with an incidence of 0.3 to 0.5 %
- Rarely, immediate-type systemic hypersensitive reactions can manifest after administration of oral, parenteral, or even intra-articular steroids
- Include reactions presenting with generalized urticaria, wheezing, shortness of breath, angioedema, hypotension, and or abdominal pain.

Triamcinolone allergic reaction

- Triamcinolone has been observed to be the third-highest corticosteroid causing allergic reactions after methylprednisolone and prednisolone
- Intra-articular joint injections are not frequently associated with a risk of anaphylaxis
- Cross-reactivity between corticosteroids is possible, but evidence on this topic is lacking

Testing for corticosteroid allergy

When appropriate, evaluation should consist of skin prick and intradermal testing

- Can also consider testing for inactive ingredients

Discussion

- Corticosteroid allergy is rarely reported
- The frequency of exposure to corticosteroids has been associated with increased risk of hypersensitivity
- Corticosteroid allergy is not typically drug-specific
- Diagnosing a corticosteroid allergy can be very challenging

Take Home Points

- IgE-mediated hypersensitivities to triamcinolone are rare, and intra-articular joint injections are not frequently associated with a risk of anaphylaxis
- Cross-reactivity between corticosteroids is possible
- Conducting extra skin testing to assess the suitability of alternative corticosteroids can be vital for ensuring patient safety

References

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