ANAPHYLAXIS

(Last updated 08/12/2019; Reviewed by: Svetlana Herasevich, MD)

PRESENTING COMPLAINTS: Skin rash, difficulty breathing, hypotension

FINDINGS

- **A** Airway swelling (lips, tongue, uvula)
- **B** ↑ RR, ↑ work of breathing, wheezing, stridor
- **C** ↓ BP, ↑ HR
- **D** normal to variable altered
- **E** Skin and mucosal (urticarial) rash, flushing; angioedema
- **L_{PC}** ABG-PO2 ↓
- **U_{PC}** Hyperdynamic LV/RV, collapsible IVC

*V (verbal), P (pain), U (unconsciousness), D (delirious)*

U_{PC} (point of care ultrasound)  L_{PC} (point of care labs)

OTHER HISTORY

- **Predisposing Conditions**
  - Known exposure
- **Symptoms**
  - Hypotension, dizziness, collapsing, skin rash, flushing, airway swelling (lips, tongue, uvula), wheezing, stridor, hypoxemia, nausea, vomiting, diarrhea

DIFFERENTIAL DIAGNOSIS

- Hereditary or acquired angioedema (i.e. ACE inhibitors), generalized urticarial, acute asthma exacerbation, vasovagal syncope, panic attack/acute anxiety

OTHER INVESTIGATIONS

- **History**
  - Known allergy and exposure
- **Serum or plasma tryptase**
  - Informative if serum or plasma were obtained within 15 min to 3 hours of start of symptoms
- **Plasma histamine**
  - Elevates in 5-15 minutes of the onset, and returns to baseline by 60 minutes

THERAPEUTIC INTERVENTIONS

- **Immediate management**
  - Basic life support
Epinephrine immediately with auto-injector: 0.3 mg IM or 0.1 mg IV to be repeated if persistent hypotension

IV fluids: crystalloids (30 ml/kg bolus)

Airway management: intubate early if angioedema suspected; do not wait

Adjunctive treatment
  - Corticosteroids for late-phase response (e.g. Methylprednisone 1mg/kg IV)
  - H1 and H2 antihistamine (e.g. diphenhydramine 50 mg IV plus ranitidine 50 mg IV)

Other considerations

- Remove allergen, if known (e.g. medication infusion, food)
- Epinephrine IV drip, if persistent shock
  - Caution with IV bolus
  - Consider intraosseous access
- Glucagon (1-5 mg IV) if patient on beta blocker
- Bronchodilator treatment with albuterol nebulization

ONGOING TREATMENT

- For at least 24 hours:
  - Watch for recurrence or protracted case
  - Consider measuring serum or plasma tryptase in doubt (e.g. sudden vasoplegic shock)
  - Consider measuring C4 and a C1 inhibitor antigenic level
    - For bradykinin mediated, non-allergen associated hereditary or acquired angioedema

CAUTION

- Epinephrine
- Antihistamines and steroids are not effective in bradykinin mediated angioedema
  - Consider fresh frozen plasma or, if available, C1 inhibitor concentrate, icatibant, or ecallantide

REFERENCES & ACKNOWLEDGMENTS

Acknowledgement: Benjamin Bonneton, MD; Philippe R Bauer, MD; Guillaume Thiery, MD; Perliveh Carrera, MD

