UNIVERSITY OF MARY WASHINGTON

Student Health Center

Provider Management of Anaphylaxis and Systemic Reactions

Definition

Anaphylaxis is an acute systemic allergic reaction following antigen exposure in a sensitized person and is considered a medical emergency. Anaphylactoid reactions are thought to reflect a release of inflammatory mediators by non-immunologic mechanisms. Most reactions will occur within 5 – 30 minutes following administration of a specific antigen, but may be prolonged or may be recurrent (biphasic) within 8 to 12 hours (J Allergy Clin Immunology, Sept 2002).

Manifestations

- **General** - Patients often report sudden anxiety, morbid fear and a sense that "something is very wrong." Palpitation may occur as well as dizziness or "graying out".
- **Cutaneous Reactions** - intense itching; especially of scalp, palms and groin areas; erythema +/- hives
- **Laryngeal Edema** - may be experienced as a "lump" in the throat, hoarseness or stridor
- **Angioedema** - sensed as fullness, numbness or other awareness of the swollen part.
- **Lower Airways** - feeling of tightness in the chest, cough or wheezing; shortness of breath
- **Gastrointestinal/Visceral** - nausea, vomiting, or diarrhea; abdominal and uterine cramping
- **Cardiovascular** - lightheadedness, palpitations, hypotension with or without syncope and/or cardiac arrhythmias

Assessment

The identification of an anaphylactic reaction depends largely upon an accurate history revealing the onset of one or more of the following:

- **Cutaneous reactions** – diffuse or localized erythema, pruritis, urticaria and/or angioedema
- **Upper airway** - laryngeal edema with possible dysphoria, stridor; rhinitis symptoms
- **Lower Airway bronchospasm** - respiratory distress, cough, wheeze, dyspnea
- **Cardiovascular system** – hypotension with or without syncope possibly progressing to vascular collapse, cardiac arrhythmias, cardiac arrest
- **Gastrointestinal system** – gastrointestinal spasm and edema leading to nausea, vomiting and/or diarrhea

Plan

Local Reactions - Usually no treatment is required other than application of ice pack and adjustment of dosage for subsequent allergy shots. If an unusually large reaction is noted before patient leaves the office, a tablet or capsule of an antihistamine such as Benadryl, Claritin, or Zyrtec may be given.

Mild Systemic Reactions - (itching of palms, scalp, roof of mouth or groin areas, mild hay fever or asthma): Administer aqueous epinephrine 1:1000 dilution 1 mg/ml.), 0.2 -0.5 ml, (0.01 mg/kg in children; maximum dose, 0.3 mg dosage) intramuscularly (*preferably initially into the arm that received the allergy shot), every 5 minutes, as necessary, to control symptoms and blood pressure. Diphenhydramine 25 to 50 mg. may be given (parenterally). Consider giving an oral corticosteroid (e.g. prednisone (0.5 mg./kg.) to prevent recurrent and protracted reactions.

Severe Systemic Reactions - (anaphylactic shock, hypotension with or without lightheadedness, bronchospasm, worsening angioedema with or without laryngeal edema, visceral spasm):

1. If a suspected offending antigen is being given, immediately stop administration; if feasible apply tourniquet above the implicated injection site.
2. The nurse should immediately contact the provider.
3. For a severe reaction, the nurse may administer one dose of aqueous epinephrine 1:1000 dilution (1 mg/ml.), 0.2 – 0.5 ml, (0.01 mg/kg in children; maximum dose, 0.3 mg. dosage) intramuscularly into the arm (deltoid) prior to arrival of provider.
4. The provider will perform an initial assessment as above and will consider anaphylaxis as well as other possible diagnoses (hypoglycemia, vasovagal reaction, seizure, PE, myocardial dysfunction, etc.). If assessment is consistent with anaphylaxis, proceed as follows:
5. Administer aqueous epinephrine 1:1000 dilution (1 mg./ml.), 0.2 - 0.5 ml (0.01 mg/kg in children, maximum dose, 0.3 mg. dosage) intramuscularly into the arm every 5 minutes as necessary and assess response.
6. Place patient in recumbent position if hypotensive.
7. Initiate oxygen at 2-4 liters/minute per nasal cannula or mask for patients in respiratory distress. Monitor pulse oximetry at frequent intervals. Monitor airway closely..
8. Assess clinical response to treatment.

For Inadequate Clinical Response – Call 911

- Immediately for laryngeal/pharyngeal edema
- Immediately for significant hypotension
- Immediately for cardiac arrhythmia
- For respiratory distress not responsive to epinephrine
- For symptoms that recur or worsen during observation after treatment

For Good Clinical Response

- Observation – length of time and setting individualized depending on severity of reaction.
- Administer diphenhydramine 25 to 50 mg. orally every 4 - 6 hours as needed.
- Consider hospital admission for 24 hour observation for patients who have manifested significant systemic reactions.
- If the patient is being discharged home after a significant systemic reaction:
- Prescribe an Epi-pen auto injector. Instruct patient on the use of Epi-pen and discuss the possibility of recurrent/biphasic reactions, the signs and symptoms thereof, and self treatment.
- The patient should not be alone for the first 24 hours after the reaction.
- Consider giving an oral corticosteroid (e.g. prednisone 0.5 gm./kg.) to prevent recurrent or protracted reactions.