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STANDARD GUIDELINE SUBJECT:

Anaphylaxis Diagnosis and Treatment

PURPOSE:

To provide timely evidence-informed responses to patients who present to an acute care facility with anaphylaxis. This applies to both adult and pediatric populations.

DEFINITIONS:

Anaphylaxis: a serious allergic reaction that is rapid in onset and may cause death. It is either IgE mediated or non IgE mediated. Clinically, patients present with the same signs and symptoms, and are treated the same.

Biphasic Reaction: recurrence of anaphylaxis without re-exposure to the inciting trigger at any time, from 1 hour after initial resolution of symptoms and up to 72 hours after initial reaction.

Clinical Criteria for Diagnosis*:*

1. ***A simplified version of the criteria is:***
   - 1.1. Anaphylaxis is highly likely when there is an acute onset of symptoms, within minutes to hours that involves 2 or more of the following systems:
     - Skin and/or mucosal tissue *(occurs in 80 to 90% of cases);*
     - Cardiovascular system *(occurs 10 to 45% of cases);*
     - Respiratory system *(occurs approximately 70% of cases);*
     - Gastrointestinal system (occurs in 30 to 45% of cases) **OR**
   - 1.2. Hypotension only, defined as follows:
     - Infants and children: age specific hypotension or greater than 30% decrease in systolic blood pressure (BP);
     - Adult: systolic BP less than 90 mm Hg or greater than 30% decrease in systolic BP.

2. Full criteria for diagnosis of anaphylaxis (Sampson et al., 2006):

Anaphylaxis is highly likely when any one of the following 3 criteria are fulfilled:
1. Acute onset of an illness (minutes to several hours) with involvement of the skin, mucosal tissue, or both (e.g. generalized hives, pruritus or flushing, swollen lips-tongue-uvula) ***AND*** *AT LEAST ONE OF THE FOLLOWING:* 1.1. Respiratory compromise (e.g. dyspnea, wheeze-bronchospasm, stridor, reduced peak expiratory flow [PEF], hypoxemia). 1.2. Reduced blood pressure (BP) or associated symptoms of end organ dysfunction (e.g. collapse, syncope, incontinence).
2. Two or more of the following that occur rapidly after exposure to a ***likely*** allergen for that patient (minutes to several hours): 2.1. Involvement of the skin/mucosal tissue (e.g. generalized hives, itch and/or flush; swollen lips-tongue-uvula). 2.2. Respiratory compromise (e.g. dyspnea, wheeze-bronchospasm, stridor, reduced PEF, hypoxemia). 2.3. Reduced BP or associated symptoms (e.g. collapse, syncope, incontinence). 2.4. Persistent gastrointestinal symptoms (e.g. crampy abdominal pain, vomiting).
3. Reduced BP after exposure to ***known*** allergen for that patient (minutes to several hours): 3.1. Infants and children: low systolic BP (age specific) or greater than 30% decrease in systolic BP (Low systolic blood pressure for children is defined as less than 70 mm Hg from 1 month to 1 year, less than 70 mm Hg + (2 x age) from 1-10 years, and less than 90 mm Hg from 11-17 years). 3.2. Adults: systolic BP of less than 90 mm Hg or greater than 30% decrease from that person's baseline.

IMPORTANT POINTS TO CONSIDER:

Base the diagnosis of anaphylaxis on the history and physical examination. There is a broad spectrum of anaphylaxis presentation that require clinical judgment. Do not rely on signs of shock for diagnosis.

It is safer to administer epinephrine when the signs and symptoms are possibly suggestive of anaphylaxis or there is doubt about the diagnosis of anaphylaxis. Although death from anaphylaxis is very rare, early use of epinephrine prevents death and the biphasic reaction, and is the only agent that has been shown to do this.

Antihistamines and corticosteroids have no role in the acute management of anaphylaxis, as they are too slow in onset of action, and are not lifesaving. Hence, they have become third line agents to be considered in the following situations:

- 2nd generation antihistamines for urticaria if present after the acute anaphylaxis is stabilized. It is preferable to use oral 2nd generation antihistamine, such as cetirizine, as it does not cause CNS depression.

- Corticosteroids do not prevent the biphasic reaction. However, in the patient with known asthma who presents with possible anaphylaxis and predominantly respiratory symptoms, corticosteroids should be given after epinephrine.

Cardiac arrest has been shown to have occurred within 5 minutes from iatrogenic anaphylaxis, 15 minutes from stinging insect venom induced anaphylaxis, and 30 minutes for food-induced anaphylaxis.

Risk factors for severe and potentially fatal anaphylaxis:
- Delayed administration of epinephrine
- Asthma
- A history of biphasic reactions
- Cardiovascular disease

PROCEDURE:

1. Triage patients for signs of anaphylaxis using the clinical criteria for diagnosis (refer to the *Anaphylaxis Algorithm* CLI.5110.SG.009.SD.01 as a guide).
   1.1. Acute onset of symptoms, within minutes to hours that involves 2 or more of the following systems:
      - Skin and/or mucosal tissue *(occurs in 80 to 90% of cases)*
      - Cardiovascular system *(occurs 10 to 45% of cases)*
      - Respiratory system *(occurs approximately 70% of cases)*
      - Gastrointestinal system (occurs in 30 to 45% of cases) **OR**

   Hypotension only, defined as follows
      - Infants and children: age specific hypotension or greater than 30% decrease in systolic BP
      - Adult: systolic BP less than 90 mm Hg or greater than 30% decrease in systolic BP
2. Initiate treatment, monitoring, and disposition decisions as defined in *Anaphylaxis Standard Orders* (CLI.5110.SG.009.FORM.01).
   2.1. Provide patient and family education on:
      - Recognition of early signs and symptoms of anaphylaxis;
      - Risk of rebound reaction, usually within 72 hours of initial anaphylactic reaction but can occur later;
      - The need to give epinephrine early if having anaphylaxis; if in doubt, administer EPINEPHrine;
      - Information on allergen avoidance measures;
      - Advise to join Medic Alert; and
      - Preferred if patient remains under the supervision of a responsible adult for 24 hours
   2.2. Prior to or on discharge:
      - Provide prescription for two (2) EPINEPHrine auto injectors (best if filled prior to discharge).
      - An action plan.
      - Refer to an allergist if allergen unknown or moderate to severe reaction.

3. Documentation:
   3.1. Document all assessment and interventions using the Emergency Department Electronic System (EDIS) or on the *Frequent Monitoring Record* (CLI.4510.PR.002.FORM.02).
   3.2. Document all medications administered on the *Medication Administration Record: STAT and Non-Recurring Medications* (CLI.4510.PR.002.FORM.08).
   3.3. If patient is discharged back to the community, document all discharge instructions in Emergency Department Electronic System (EDIS) and on *Discharge Instruction Record: Emergency Department* (CLI.5110.SG.012.FORM.01).

SUPPORTING DOCUMENTS:

CLI.5110.SG.009.FORM.01	Anaphylaxis Standard Orders
CLI.5110.SG.009.FORM.02	Patient Action Plan for Anaphylaxis
CLI.5110.SG.009.FORM.02.F	Patient Action Plan for Anaphylaxis
CLI.5110.SG.009.SD.01	Anaphylaxis Algorithm

REFERENCES:

CLI.4510.PR.002.FORM.02	Frequent Monitoring Record
CLI.4510.PR.002.FORM.08	Medication Administration Record: STAT and Non-Recurring Medications
CLI.5110.SG.012.FORM.01	Discharge Instruction Record: Emergency Department

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