4.6: Anaphylaxis

Anaphylaxis is a potentially life-threatening allergic reaction resulting from exposure to an allergen. Although anaphylaxis is extremely rare (one per one million doses administered), health professionals who administer vaccines need to know the signs and symptoms of anaphylaxis and how to administer appropriate interventions without delay.

Signs and symptoms of anaphylaxis (see Table 4.5) typically develop within minutes of exposure to an allergen. In fact, most instances of anaphylaxis occur within the first 30 minutes of exposure to an allergen, although some reactions may develop later. Clinical signs involve at least two body systems to classify the reaction as anaphylaxis. It is important for providers to recognize that symptoms of anaphylaxis vary, but the treatment is the same. Severe anaphylaxis includes obstructive swelling of the upper airway with bronchospasms and hypotension. A sudden drop in blood pressure can cause shock and loss of consciousness. If a client loses consciousness it is rarely the only manifestation of anaphylaxis and is typically a late event.

Table 4.5: Anaphylaxis Signs and Symptoms

<table>
<thead>
<tr>
<th>Body System</th>
<th>Likelihood system is part of anaphylactic response</th>
<th>Signs and Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin/Mucosa</td>
<td>80-90%</td>
<td>• Itchy, urticaria (hive) rash.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Progressive, painless swelling (angioedema) around the face and mouth, which may be preceded by itchiness, tearing, nasal congestion, or facial flushing.</td>
</tr>
<tr>
<td>System</td>
<td>Percentage</td>
<td>Symptoms</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Respiratory</td>
<td>70%</td>
<td>Sneezing, coughing, wheezing, labored breathing, and upper airway swelling (indicated by hoarseness and/or difficulty swallowing) possibly causing airway obstruction.</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>45%</td>
<td>Crampy abdominal pain, nausea, and vomiting.</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Up to 45%</td>
<td>Chest pain, palpitations, tachycardia, sudden reduction in blood pressure, or symptoms of end-organ dysfunction (e.g. hypotonia and incontinence). In infants symptoms may also include fussiness, irritability, drowsiness, or lethargy.</td>
</tr>
<tr>
<td>Central Nervous System</td>
<td>Up to 15%</td>
<td>Uneasiness, altered mental status, dizziness, or confusion.</td>
</tr>
</tbody>
</table>

Points of Consideration

During the consent phase, all clients should be screened for contraindications, including a previous history of anaphylaxis to any vaccine. Screening for contraindications is of utmost importance. All clients should be reminded to stay for at least 15 minutes after vaccination to monitor for side effects.

**Responding to Anaphylaxis**

Health professionals should review their institutional policies for medical directives in the management of anaphylaxis and know where to access an anaphylaxis management kit. Epinephrine is the treatment of choice for anaphylaxis. **Prompt administration of epinephrine is the priority** and should not be delayed because failure to administer epinephrine promptly could result in serious anaphylaxis. The risk of administering epinephrine inappropriately is less severe than anaphylaxis. If uncertain, err on the side of treatment; there are no contraindications to the use of epinephrine. If time is lost early in the treatment of an acute anaphylactic episode, subsequent management can become more difficult.

Some basic procedures for responding to anaphylaxis are outlined in Table 4.6.
Table 4.6: Procedure for Responding to Anaphylaxis

Assess

Assess for airway, breathing and circulation (ABCs), level of consciousness (LOC)/mental status, and approximate body weight.

*Respond to ABC and LOC as per the program specific policies and procedures outlined by your institution.

Call for Assistance

Depending on your institutional policies, calling for assistance may require you to call 9-1-1, use the emergency call bell, or call for a colleague. Be prepared and know what you should do in an emergency.

Position

If the client is in respiratory distress, place them in the recumbent position or a position of comfort. If the client is vomiting or unconscious place them on their side. If the client is pregnant place them in a semi-recumbent position on their left side with legs elevated.

Intervention

Refer to your institutional policies for protocols on the management of anaphylaxis. Know who is responsible for injecting epinephrine intramuscularly. Refer to guidelines and site protocol. Record time and dose. Monitor for repeat dose.

A general guide is:

**Inject epinephrine intramuscularly in the mid-anterolateral aspect of the thigh:** 0.01 mg/kg body weight of 1:1000 (1 mg/mL) solution

- ADOLESCENT or ADULT: maximum – 0.5 mg
- CHILD: maximum – 0.3 mg

If applicable, notify the client’s next of kin. Monitor and record vital signs every five minutes and reassess frequently. Ensure client remains in recumbent position until transfer. Sudden death can occur quickly if the client sits, stands, or is placed in an upright position suddenly after giving epinephrine. Therefore, it is important for the client to be placed in the recumbent position with their lower extremities elevated and monitored closely after epinephrine is given.

Monitoring

This section was remixed with editorial and content changes from the Canadian Immunization Guide by the Government of Canada and is reproduced under non-commercial conditions.