Anaphylaxis in the ER: More than just a puffy face

By Teri Fahner, RN, BScN

In the emergency department nurses will encounter a variety of conditions requiring urgent and immediate interventions. One of these situations is anaphylaxis, which is defined as "a serious allergic reaction that is rapid in onset and may cause death" (Kim & Fischer, 2011). For those nurses who are working in the emergency department, it is of utmost importance that they can quickly and thoroughly assess and identify when anaphylaxis is occurring in order to deliver effective and timely treatment for their patients. Anaphylaxis is a term that "is often reserved to describe immunological, especially IgE-mediated reactions. A second term, non-allergic anaphylaxis, describes clinically identical reactions that are not immunologically mediated. The clinical diagnosis and management are, however, identical" (Lockey, 2012). With this description in mind, it is imperative that nurses working in emergency departments are capable of properly recognizing anaphylaxis and preparing for immediate and appropriate intervention.

Most nurses would be capable of recognizing anaphylaxis if it presents with the most common manifestations, which are "cutaneous symptoms, including urticaria and angioedema, erythema (flushing), and pruritus (itching). Patients also describe a sense of impending doom" (Kim & Fischer, 2011). The reactions occur quickly and are unpredictable, the symptoms "typically develop within minutes after exposure to the offending allergen, but may occasionally occur as late as one hour post exposure" (Kim & Fischer, 2011). It is important to be aware that in recent years there have been adaptations to the criteria that identify anaphylaxis, as well as recognizing that the most crucial area of focus for the proper diagnosis lies in the patient history (prnEducation, 2015).

When assessing a patient with a potential case of anaphylaxis in the emergency department, the acknowledgement of thorough history is paramount; "history is the most important tool to establish the cause of anaphylaxis and should take precedence over diagnostic tests" (Kim & Fischer, 2011). When retrieving the history, nurses must include clinical appearance and exposure encountered before the incident, as well as patient activity preceding the event, such as exercise or sexual activity.

There are three categories into which anaphylaxis falls in terms of diagnostic criteria. The first of these is exposure and airway problems. These are typically caused by an injection source of exposure (prnEducation, 2015). This is the category of anaphylaxis that is the most common and also "includes involvement of the skin, mucosal tissue, or both" (Kim & Fischer, 2011). This criterion is the common presentation, which involves, but is not limited to the typical angioedema leading to throat tightness, tongue swelling, and hives. The second category that is included in the diagnostic criteria is "the impact of two or more body systems after the likely exposure to an allergen" (prnEducation, 2015). There are five body systems that are included in this category. These body systems include integumentary, respiratory, gastrointestinal, cardiovascular, and other, which includes anxiety and the sense of impending doom (prnEducation, 2015). The third category that contributes to the diagnostic criteria is "reduced blood pressure after exposure to a known allergen for that patient. A blood pressure is considered reduced when it is >30% decrease in systolic blood pressure from the normal patient measurement" (Kim & Fischer, 2011). With the knowledge of these categorizations in mind, it is paramount that nurses are aware of the patient history and understand that a patient may have no respiratory or cutaneous involvement whatsoever in the presence of anaphylaxis. It is of great significance that the nurse can identify the recent exposure to the known or potential allergen in order to rapidly and adequately treat.

Once the diagnosis of anaphylaxis has been established, the prompt initial treatment is essential as "even a few minutes delay can lead to hypoxic-ischemic encephalopathy or death" (Simons et al., 2013). The patients' airway, breathing, and circulation must be assessed quickly and immediate interventions provided as necessary. The drug of choice for the initial treatment of anaphylaxis is epinephrine, and "epinephrine should be given immediately to any patient with a suspected anaphylactic episode...even if the diagnosis is uncertain since there are no contraindications to the use of epinephrine" (Kim & Fischer, 2011). Epinephrine should be given intramuscularly in the lateral thigh. This is the route of choice as "it allows for more rapid absorption and higher plasma epinephrine levels...it can be given every five to 20 minutes, as necessary, if no improvement" (Kim & Fischer, 2011). The administration will not stop the anaphylactic episode from occurring. However, it will provide supportive measures to the body by restoring cardiovascular support, stopping respiratory and airway swelling, and stopping fluid shifts, ultimately resulting in the prevention of the development or worsening of distributive shock caused by anaphylaxis (prnEducation, 2015). It has also been found that "In actual studies of individuals who have died as a result of anaphylaxis, epinephrine was under-used, not used at all, or administration was delayed" (prnEducation, 2015). The administration of this medication is absolutely paramount in the management of anaphylaxis and favourable outcomes for the patient.

During the initial treatments of anaphylaxis, antihistamines are not recommended to be used instead of epinephrine. They are

not intended for the reason that "they do not relieve life-threatening respiratory symptom or shock, although they decrease urticaria and itching" (Simons et al., 2013). Nurses should be mindful that antihistamines can be provided for the treatment of cutaneous symptoms and second-line treatment related to these symptoms. However, it will not be useful in preventing distributive shock and respiratory compromise, amongst other life threatening complications. "Intravenously administered H_1-antihistamines can also cause hypotension" (Simons et al., 2013), which is not favourable during anaphylactic episodes as "massive fluid shifts can occur rapidly in anaphylaxis due to increased vascular permeability" (Kim & Fischer, 2011). Understanding that there is a likelihood of substantial fluid shifts and hypotension is also an indication that the nurse can anticipate the initiation of intravenous access, preferably with a large bore catheter, and the administration of fluid for intents of resuscitation. In order to prevent adverse effects of fluid shifts and hypotension, nurses should also "ensure that patients are lying supine with their legs elevated, except if they have shortness of breath or vomiting...do not allow the patient to stand abruptly, as the fluid shift is a likely cause of cardiovascular collapse in the patient experiencing anaphylaxis, which is the second most common cause of death, following airway swelling" (prnEducation, 2015).

After patients have been treated for anaphylaxis, the patient must be observed and monitored for a period of time in order to ensure that the likelihood of a biphasic, or rebound, reaction is less. It is stated that "experts have recommended observing patients for four to six hours following an anaphylactic reaction, with prolonged observation times for patients with severe or refractory symptoms" (Kim & Fischer, 2011). It is also important to note that individuals who have experienced anaphylactic reactions should be given epi-auto injectors, ideally more than one in the event that they experience another exposure to the responsible allergen in the future.

Anaphylaxis is a medical emergency that has a rapid onset and requires immediate attention. It is categorized by three different criteria and the involvement of the respiratory and integumentary systems are not absolute. It requires the immediate administration of intramuscular epinephrine accompanied by intravenous fluids, and secondary treatment using antihistamines, if necessary. The nurse also needs to ensure close observation for biphasic reactions, as well as patient education regarding the risk of future anaphylactic episodes. It is seen in the emergency department and nurses must have preparation and knowledge to accurately recognize when it is occurring and be able to anticipate its management in order to achieve optimal patient care and outcome.

About the author

Teri Fahner, RN, has been living with her family in and around Edmonton, Alberta, and working as a Registered Nurse at the Grey Nuns Hospital in the emergency department since graduating in 2012. She has also worked in a rural hospital in both emergency and acute care. Teri has developed a passion for working with those individuals who are acutely and/or critically ill and frequently developing and learning ways to enhance their outcomes. On days off Teri enjoys spending time with friends and family.

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