Anaphylaxis: Signs, symptoms, and pathophysiology

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Underlying Pathophysiology

- A systemic, immediate, hypersensitivity reaction produced by immune response to inhalants, foods, medications, or injections of mediators from mast cells and basophils (Lieberman, 2013).
- Type I hypersensitivity is the classic immediate reaction of anaphylaxis. In this example, it can be produced by anaphylactic shock. The early phase is generated by mast cell and basophil mediator release, resulting in the activation of and degranulation (Arnold, & Williams, 2011).
- The onset of symptoms is generally within minutes of exposure but can occur within hours (Campbell, Li, Nicklas, & Sadosty, 2014). The severity of reaction can range from mild to life-threatening with symptoms, including hives, itching, sneezing, rhinitis, conjunctivitis, urticaria, bronchospasm, hypotension, angioedema, and cardiovascular collapse (Campbell, Li, Nicklas, & Sadosty, 2014).

Significance of Pathophysiology

- Histamine is the most common component of granules and, once released, acts mainly via H1 receptors to trigger vasodilation and increased vascular permeability (Casey, 2013).
- Degranulation of mast cells and basophils, releasing histamine, can lead to symptoms such as itching, swelling, wheezing, and difficulty breathing (Casey, 2013).
- When the immune system overreacts and releases a substance called histamine, it can cause an allergic reaction, known as anaphylaxis. This reaction is severe and can be life-threatening (Campbell, Li, Nicklas, & Sadosty, 2014).

Pathophysiologic Process: Case Study

A 31-year-old apparatus operating on her department and having an allergic reaction. She states that she is aware of an existing peanut allergy that was described to her in childhood by a parent. The patient states that she is very cautious to not ingest any peanut containing products, but she has never experienced any allergy symptoms that required medical attention. The patient has visible urticaria on her arms and exposed neck, which also state “itchy”. The patient states that she feels a tightness in her chest, and a sensation of nausea; however, she has not “thrown up”.

Engaging Patients in Their Own Preparedness and Therapy

- Action Plans:
  - Provide an anaphylaxis plan of action that is illustrative and written in an understandable form.
  - Educate the patient on plans of action, patients, caregivers, and schools.
  - Educate what to do in terms of risk.
  - The possibility of increasing severity with subsequent exposure.
  - Relevant awareness measures.
  - Early recognition of symptoms.
  - Appropriately treat with Antihistamines, or Epinephrine, or an Epinephrine auto-injector.
  - Improvement adherence through tailored self-management plans, one-on-one counseling sessions, or even telephone follow-up. Many discussions after a visit should include the following questions:
    - Did you pick up your medicine?
    - Do you have any concerns about what we discussed regarding how to use the medicine and why you need it?
    - Have you made any changes in your care insurance programs?

References


Bonds, R. S., Awan, S., Burt, D., Foerster, J., Fiscus, S., Lofquist, R.S., & Sampson, H. (2014). A patient can be experiencing anaphylactic shock. Anaphylaxis is associated with anaphylactic-associated triggers is essential to the effective treatment of anaphylaxis, and such administration is dependent on correctly diagnosing anaphylaxis (Campbell, Li, Nicklas, & Sadosty, 2014).


http://www.cityallergy.com

http://www.cityallergy.com/anaphylaxis/anaphylaxis-case-studies.html


JACI Indicates the prevalence and characteristics of anaphylaxis in the United States. The Journal of Allergy and Clinical Immunology (133), 846-857. doi:10.1016/j.jaci.2013.08.006

Cause of anaphylaxis

- Food allergy is the most common trigger of anaphylaxis in children and adolescents, however other triggers include, but are not limited to drug allergies, chemicals, insect venom, and exercise. (Gupta, 2014).
- Most patients make at least one mistake in administration of auto-injectors; furthermore, patients must make multiple mistakes in taking medication from self-administration of the potentially life-saving treatment if the need arises (Casey, 2013).
- A large percentage of patients use epinephrine incorrectly; therefore, it is essential that healthcare providers understand the proper use of an epinephrine auto-injector and confirm patient proficiency (Campbell, Li, Nicklas, & Sadosty, 2014).

Symptoms

- Oral Allergy, Heart of Health

SYMPTOMS

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Implications for Nursing Care

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