

Anaphylaxis: getting to the point (and price) of diagnosis and treatment

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Anaphylaxis was first described by Charles Richet and Paul Portier in 1901 as an immune reaction that is the opposite of immune protection resulting from vaccination.¹ Anaphylaxis can be better categorized into both immunoglobulin E (IgE) and non-IgE pathways.² Between 1.6% and 5.1% of the Americans are estimated to experience anaphylaxis, which can be fatal.³ The common triggers for an acute anaphylactic episode are foods, drugs, and venoms. Ultimately, a number of mediators are released that explain the clinical symptoms of flushing, pruritus, urticaria, shortness of breath, bronchospasm, hypotension, and cardiovascular collapse.² Epinephrine injection is the evidence-based treatment for acute anaphylaxis, and delayed epinephrine administration is a risk factor for fatal anaphylaxis.³ However, like many other effective therapies in medicine, there remain barriers to treatment of anaphylaxis.

This special edition of the *Journal of Asthma and Allergy* focuses on anaphylaxis from many different provocative angles and should be an asset to practicing physicians. Yue et al focus on food and drug allergies associated with anaphylaxis, an issue that has evolved over the years culminating in new guidelines for the treatment of food allergies, which may impact on the incidence of food-related anaphylaxis.⁴ Jiminez-Rodriguez et al provide a comprehensive overview of anaphylaxis types and biomarkers.⁵ Prince et al focus on deficiencies in the proper use of epinephrine.⁶ Westermann-Clark et al focus on the economics of epinephrine treatment, a topic rarely discussed at annual scientific meetings, but one that is in the lay press quite frequently.⁷

Previous studies of epinephrine injection use for the treatment of anaphylaxis identified two main areas of obstacles for patients and caregivers: lack of correct use and lack of response.⁸ Lack of affordability and lack of prescription by physicians were determined to be components for the lack of use of epinephrine injections. Incorrect use and delayed injection were described as reasons for lack of response. Correct use of the devices is often studied through human factors studies, which is paramount to proper treatment of anaphylaxis.^{9,10} Incorrect use of epinephrine can also result in needle injuries, which have been documented in multiple case reports.^{11–14} Lack of response to epinephrine can also be due to the malfunction of the device, as noted recently with autoinjectors^{15,16}.

We hope that the current issue will help clinicians better understand the pathophysiology, diagnosis, and treatment options for anaphylaxis.

Disclosure

The author reports no conflicts of interest in this work.

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References

1. Ring J. editor. *Anaphylaxis. Chem Immunol Allergy*. Basel: Karger; 2010:1–11.
2. Castells M. Diagnosis and management of anaphylaxis in precision medicine. *J Allergy Clin Immunol*. 140(2):321–333.
3. Turner PJ, Jerschow E, Umasunthar T, Lin R, Campbell DE, Boyle RJ. Fatal anaphylaxis: mortality rate and risk factors. *J Allergy Clin Immunol Pract*. 2017;5(5):1169–1178.
4. Yue D, Ciccolini A, Avilla E, Wasserman S. Food allergy and anaphylaxis. *J Asthma Allergy*. 2018;11:111–120.
5. Jimenez-Rodriguez TW, Garcia-Neuer M, Alenazy L, Castells M. Anaphylaxis in the 21st century: phenotypes, endotypes and biomarkers. *J Asthma Allergy*. 2018;11:121–142.
6. Prince BT, Mikhail I, Stukus DR. Underuse of epinephrine for the treatment of anaphylaxis: missed opportunities. *J Asthma Allergy*. 2018;11:143–151.
7. Westermann-Clark E, Pepper AN, Lockey RF. Economic considerations in the treatment of systemic allergic reactions. *J Asthma Allergy*. 2018;11:153–158.
8. Simons KJ, Simons FE. Epinephrine and its use in anaphylaxis: current issues. *Curr Opin Allergy Clin Immunol*. 2010;10:354–361.
9. Moss RB, Daniels K, Moll T, Carlo DJ. Human factors study in untrained adolescents comparing an epinephrine prefilled syringe (Symjepi™) with EpiPen® autoinjector. *Annals of Allergy, Asthma & Immunology*. 2018;120(5):540–541.
10. Moss RB, Daniels K, Moll T, Carlo DJ. Human Factors Study of a Newly Approved Epinephrine Prefilled syringe (PFS) for the Emergency Treatment of Allergic Reactions (Type I) including Anaphylaxis. AAAAI Meeting, March 3; 2018; Orlando, FL, abstract 124.
11. Simons FER, Edwards ES, Read EJ, Clark S, Liebel EL. Voluntary reported unintentional injections from epinephrine auto-injectors. *JACI*. 2010;125:419–423.
12. Copeland CJ. Accidental digital epinephrine injection: to treat or not to treat? *Can Fam Physician*. 2014(60):726–728.
13. Brown JR. Turi, Lacerations and embedded needles due to EpiPen use in children. *J Allergy Clin Immunol Pract*. 2016;4(3):549–551.
14. Redmond M, Stukus D. Lacerations associated with use of epinephrine autoinjectors in children. *J Allergy Clin Immunol Pract*. 2016;4(3):2213–2218.
15. Reuters. U.S. Mylan says EpiPen manufacturing partner to expand device recall [press release]. Health News. 2017 [April 1]. Available from: <http://www.reuters.com/article/us-mylan-nl-recall-epipen/mylan-says-epipen-manufacturing-partner-to-expand-device-recall-idUSKBN1722XB>. Accessed May 16, 2018.
16. Reuters. U.S. FDA warns of problems with EpiPen manufacturing plant [press release]. U.S. Legal News. 2017 [September 8]. Available from: <https://www.reuters.com/article/us-pfizer-mylan-epipen/u-s-fda-warns-of-problems-witepipen-manufacturing-plant-idUSKCN1BI2Y5>. Accessed May 16, 2018.

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