



Contents lists available at ScienceDirect

Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation



Editorial

Adrenaline is first line treatment for the emergency treatment of anaphylaxis

Anaphylaxis is a rapidly progressive, potentially fatal hypersensitivity reaction to a substance or set of factors to which the affected person is sensitive. It occurs most commonly in the community, often in a non-medical setting.¹ Almost any organ system can be affected, but it is the involvement of the respiratory and circulatory systems that are of central importance, as compromise of these can lead to death, typically within minutes of the onset of the reaction.²

There has in recent years been considerable progress in characterising the epidemiology of anaphylaxis. Given the inherent challenges in studying a condition that is acute in onset and in which reactions are typically short-lived, a number of innovative methodological approaches have been used. In particular, secondary analyses of routine sources of data from primary and secondary care have proved invaluable.³ Such epidemiological research has, for example, strongly suggested that the incidence of anaphylaxis is increasing.^{3–7} However, the sources used to capture these data have their own merits and limitations. Primary care data can be subject to incomplete data capture and are likely to exclude cases that are, for example, managed at home or occur in hospital; conversely, emergency department and hospital in-patient data are unlikely to capture information on reactions managed solely in the community. Of particular note is that neither information source necessarily provides adequate information on the initial emergency management of anaphylaxis in the community, which is of pivotal importance for ensuring good outcomes.

In the novel analysis of routinely collected data by Capps et al. reported in this issue,⁸ data on the frequency and outcome of calls for patients requesting ambulance assistance for allergies within the Greater Manchester County of the North West of England over a one year period were analysed. This piece of work is particularly welcome in that it provides one of the first attempts at studying the epidemiology of anaphylaxis at this important interface with first-aiders and paramedical staff, and gives an important insight into the emergency management of anaphylaxis.

Given the acknowledged difficulties with case definition, coding and case ascertainment, determining the true incidence of anaphylaxis remains elusive.^{9,10} However, this work has,⁸ in keeping with other epidemiological studies, confirmed that anaphylaxis remains, despite the recent increases, a relatively uncommon condition. Where the allergen was documented, the susceptibilities to triggers were found to vary by age in a predictable manner¹¹ – i.e. the commonest triggers for anaphylaxis in children being foods (milk, eggs, fish and nuts) and medications (antibiotics and non-steroidal anti-inflammatory drugs) in adults.¹²

It is encouraging that 50% of the 816 cases of severe allergic reaction were responded to by ambulatory emergency care within 6 min, this proportion increasing to 85% within 10 min. However, it is of considerable concern that only 116 of 514 (22.6%) of those with cardiovascular and/or respiratory features – that is, with anaphylaxis – received adrenaline (epinephrine). Although anaphylaxis is, in the majority of cases, a self-limiting condition, there remains considerable uncertainty in determining who will and who will not develop particularly severe reactions, which may result in death. Detailed investigation of case fatalities has found that delayed or inadequate administration of intra-muscular adrenaline is an important contributory factor.^{9,13–15} It is therefore crucially important that the recently issued guidelines which recommend that adrenaline should be given to all patients with life-threatening features, be adhered to, irrespective of where the patient is managed.²

References

1. Simons FE. Anaphylaxis. *J Allergy Clin Immunol* 2010;125:S161–81.
2. Soar J, Pumphrey R, Cant A, Clarke S, Corbett A, Dawson P, et al. Emergency treatment of anaphylactic reactions – guidelines for healthcare providers. *Resuscitation* 2008;77:157–69.
3. Sheikh A, Hippisley-Cox J, Newton J, Fenty J. Trends in national incidence, life-time prevalence and adrenaline prescribing for anaphylaxis in England. *J Roy Soc Med* 2008;101:139–43.
4. Sheikh A, Alves B. Hospital admissions for acute anaphylaxis: time trend study. *BMJ* 2000;320:1441.
5. Gupta R, Sheikh A, Strachan DP, Anderson HR. Increasing hospital admissions for systemic allergic disorders in England: analysis of national admissions data. *BMJ* 2003;327:1142–3.
6. Gupta R, Sheikh A, Strachan DP, Anderson HR. *Thorax* 2007;62:91–6.
7. Anandan C, Gupta R, Simpson CR, Fischbacher C, Sheikh A. Epidemiology and disease burden from allergic disease in Scotland: analyses of national databases. *J Roy Soc Med* 2009;102:431–42.
8. Capps JA, Sharma V, Arkwright PD. Prevalence, outcome and pre-hospital management of anaphylaxis by first-aiders and paramedical ambulance staff in Manchester, UK. *Resuscitation* 2010; doi:10.1016/j.resuscitation.2010.01.021.
9. Lieberman P, Camargo CA, Bohlke K, et al. Epidemiology of anaphylaxis Working Group. *Ann Allergy Asthma Immunol* 2006;97:596–602.
10. Simpson CR, Anandan C, Fischbacher C, Lefevre K, Sheikh A. Will SNOMED-CT improve our understanding of the disease burden posed by allergic disorders? *Clin Exp Allerg* 2007;37:1586–93.
11. Alves B, Sheikh A. Age-specific aetiology of anaphylaxis: a study of routine hospital admission data. *Arch Dis Child* 2001;85:349.
12. Lieberman PL. Anaphylaxis and anaphylactoid reactions. In: Adkinson NF Jr, Busse WW, Yunginger JW, et al. (Eds.), *Middleton's allergy principles and practice*. 6th edn. St Louis, MO: Elsevier, 2008.
13. Pumphrey RSH. Lessons for management of anaphylaxis from a study of fatal reactions. *Clin Exp Allerg* 2000;30:1144–50.
14. Pumphrey RSH, Roberts ISD. Postmortem findings after fatal anaphylactic reactions. *J Clin Pathol* 2000;53:273–6.
15. Sampson HA, Mendelson L, Rosen JP. Fatal and near-fatal anaphylactic reactions to food in children and adolescents. *N Engl J Med* 1992;327:380–4.

Colin R. Simpson
Aziz Sheikh*

*Allergy & Respiratory Research Group, The Centre for
Population Health Sciences, The University of
Edinburgh, Medical School, Teviot Place, Edinburgh
EH8 9AG, United Kingdom*

* Corresponding author. Tel.: +44 131 650 9119;
fax: +44 131 275 7727.
E-mail address: aziz.sheikh@ed.ac.uk
(A. Sheikh)

Available online xxx