Anaphylaxis: quintessence, quarrels, and quandaries

Anaphylaxis is the quintessence of emergency medicine. It occurs unexpectedly often in the young and otherwise healthy,[1] may progress rapidly from an innocuous presentation, is potentially fatal particularly if mistreated, has no bedside diagnostic test of value mandating pure clinical recognition, responds dramatically to treatment (adrenaline (epinephrine)), and usually allows discharge within six to eight hours in the absence of a biphasic response.[2]

When the Project Team of the Resuscitation Council (UK) first published their consensus guidelines on the *Emergency medical treatment of anaphylactic reactions* aimed exclusively at first medical responders, inexperienced in the management of this emergency,[3] they drew the customary howls of dissent that seem to beset all reasonable attempts to define good medical practice in the treatment of acute anaphylaxis.[4] The same happened after Fisher published his excellent paper on *Treatment of acute anaphylaxis* in the *British Medical Journal*,[5] which was followed by no less than 10 letters in response, many of which contained errors of logic.[2] More pertinently in these days of evidence-based guidelines, the Project Team of the Resuscitation Council (UK) were justifiably criticised for failing to reference in their original paper recently published emergency department guidelines.[4] However, these latter guidelines themselves were simply another group of experts' own opinions, with no published data on how, when or where this other group's anaphylaxis treatment algorithms had been "clinically tested".[6] Certainly, the paucity of any significant prospective, double blind, placebo controlled trials of treatment in acute anaphylaxis necessitates resorting in the main to Expert Opinion (EO) levels of evidence, but they should be recognised as such for what they are. This is beginning to change with valid papers for instance now showing that the intramuscular route of injection for adrenaline is preferable to the subcutaneous,[7] and that adding H_2 blockers to H_1 antagonists results in the additional improvement of certain cutaneous outcomes for patients presenting with acute allergic syndromes.[8]

The changes to the original consensus guidelines published in this edition of the journal followed a meeting between representatives of the Project Team, the British National Formulary (BNF) and of the Department of Health (DOH) representing the community nurses.[9] The revised paper now specifies adult and paediatric management guidelines for community nurses tailored to the single preferred drug that they may administer namely adrenaline (fig 3 and 4). There are small changes to the dose and dilution of adrenaline in children plus a modification of the age brackets to align with recommendations from the Royal College of Paediatrics and Child Health (fig 2). These changes, although clinically inconsequential, will achieve consistency across both the paediatric literature and in the BNF and the new versions of the Green Book to be published by the DOH in relation to immunisation and vaccination. Figure 1 also mentions the role of an EpiPen, for those familiar with its use.

These new algorithms are clear, sensible, safe and simple. They should be available to all first responders from paramedics to general practitioners, from community nurses to non-specialist doctors in outpatient clinics, either as wall charts or laminated, pocket memos. Specialists such as emergency physicians, anaesthetists or intensivists who deal with anaphylaxis in high dependency, monitored areas will prefer to continue to use the other published guidelines referred to in the paper, which sensibly recommend the intravenous route of adrenaline in acute severe anaphylaxis, highly diluted and titrated to response. Clinicians looking for international guidelines may also wish to read the offerings from the Joint Task Force on Practice Parameters in the USA representing the American Academy, College and Joint Council respectively of Allergy, Asthma and Immunology[10] and the International Resuscitation Guidelines 2000—a Consensus on Science.[11]

Without now wishing to be branded a hypocrite and become just another dissenting voice, the only statement in the new Project Team guidelines that is questionable is the recommendation to halve the dose of adrenaline in patients taking amitriptyline, imipramine, or β blockers. This is based on the theoretical potentiation of response to adrenaline in patients taking these antidepressants caused by the inhibition of the membrane pump mechanism responsible for the uptake of noradrenaline at adrenergic neurons; and to the predominance of unopposed α adrenergic effects leading to hypertension, bradycardia and augmented mediator release in patients taking β blockers given adrenaline.[12] Paradoxically, other authors actually recommend an increased dose of adrenaline for anaphylaxis in patients taking β blockers.[13 14] There are no prospective, clinical data to support either viewpoint. The alternative is to attempt to increase intracellular cyclic AMP independently of the β receptor by using glucagon intravenously in patients taking β blockers.[2 14]

This is the ultimate quandary regarding the treatment of acute anaphylaxis. It is time for clinicians to stop arguing and to divert their energy to producing outcome data. Even if we only start with retrospective analytical studies, it would pave the way for more reasoned scientific debate and ultimately good, prospective Level 1 data perhaps from collaborative research. Until then, guidelines such as these should be followed.

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