



Letter to the Editor

Anaphylactic and anaphylactoid reactions



Dear Sir,

It is with great interest that we read the article « Postmortem biochemistry: current applications » by Belsey and Flanagan, recently published in the Journal of Forensic and Legal Medicine.¹

In this article, the authors provided an intensive, in depth review focusing on the possible applications of biochemical investigations in the forensic setting.

Among the different topics presented by the authors, a paragraph entitled “Anaphylactic/anaphylactoid reactions” pertains to a particular forensic issue, namely the postmortem diagnosis of death from anaphylaxis. The authors pertinently state that although a raised tryptase concentration in postmortem serum samples may provide supporting evidence in the diagnosis of fatal anaphylaxis, it cannot be used as the sole diagnostic criterion, since increased levels of mast cell derived tryptase can be commonly observed in deaths unrelated to anaphylaxis.

Anaphylaxis is an acute, life-threatening systemic reaction with varied mechanisms, clinical presentations and degrees of severity that result from the sudden release of mediators from mast cells and basophils (American Academy of Allergy, Asthma and Immunology (AAAAI)/American College of Allergy, Asthma and Immunology (ACAAI) Guideline definition). Concerning the pathophysiology of anaphylaxis, the AAAAI/ACAAI Guidelines describe “immunologic mechanisms” of anaphylaxis and “direct mast cell activation”. On the other hand, the World Allergy Organization (WAO) Guidelines provide an overview of “IgE-dependent” and “IgE-independent” immunologic mechanisms in anaphylaxis in contrast to “direct mast cell stimulation”. Irrespective of the chosen guidelines, it can be affirmed that the mechanism of anaphylaxis can be immunologic (IgE-dependent or IgE-independent, for example IgG-mediated) or non-immunologic, the latter leading to direct mast cell stimulation.²

The recent consensus statement from the International Consensus On (ICON) Anaphylaxis emphasized that the term “anaphylaxis” should be used in preference to terms such as “anaphylactoid reaction” or “pseudo-anaphylaxis”.²

The necessity of having a shared terminology pertaining to anaphylaxis was already felt in the clinical setting at the beginning of the 21st century, when the nomenclature task force of both the European Academy of Allergy and Clinical Immunology (EAACI) and the WAO proposed a definition of anaphylaxis based on clinical

symptoms, irrespective of the pathomechanism involved in the elicitation. This has led to a more specific, rational use of the terms “immunologic” and “non-immunologic” as well as the suggestion of using them in preference to less specific terms such as pseudo-allergic reaction, pseudo-anaphylaxis and anaphylactoid reaction. Accordingly, anaphylaxis, from whatever non-immunologic cause, should be referred to as non-allergic anaphylaxis, stemming from the assumption that allergy is a hypersensitivity reaction initiated by specific immunologic mechanisms.^{3–5}

In the realm of forensic pathology, fatal cases of anaphylaxis (for example following contrast agent exposure in hospitalized patients) may occasionally be encountered. In these situations, beyond the classical problems inherent in establishing the cause of death due to the diagnostic limits of postmortem investigations, forensic pathologists may face difficulties in formulating exhaustive reports and conclusions. This is an issue of paramount importance since reports on medico-legal autopsies must be understandable for the inquiring authorities and precise regarding used terminology as well as scientifically unobjectionable at the same time.⁴

On the other hand, in my routine work I am often surprised at how the diagnostic potential of postmortem biochemical investigations (including mast cell tryptase as well as total and specific IgE determination) is completely unknown in the clinical field. For this main reason, I am of the opinion that forensic pathologists should adopt and adjust their terminology to that employed in the clinical setting. Consequently, “non-immunologic” anaphylaxis should perhaps be preferred to the term “anaphylactoid”. Though the latter is surely not completely wrong, it might sound outdated and in some way imprecise.

Author declaration

We wish to confirm that there are no known actual or potential conflicts of interest associated with this publication, including financial, personal or other relationship with other people or organizations within three years of beginning the submitted work that could inappropriately influence, or be perceived to influence, their work.

We wish to confirm that there has been no significant financial support for this work that could have influenced its outcome.

We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied

the criteria for authorship but are not listed.

We further confirm that the order of authors listed in the manuscript has been approved by all of us.

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property.

We further confirm that any aspect of the work covered in this manuscript that has involved either experimental animals or human patients has been conducted with the ethical approval of all relevant bodies.

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19 August 2016

Available online 24 August 2016