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Editors' view

Allergy, pseudo-allergy and non-allergy

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Despite the frequency of adverse reactions to drugs, allergic reactions are relatively uncommon. About 80% of adverse reactions are type A, or predictable, drug reactions that are explicable from the known pharmacology of the drug. Of the type B, or unpredictable, reactions many are due to drug intolerance (usually occurring at low doses of the drug), idiosyncratic reactions or pseudoallergy that is produced by the direct release of mediators from cells such as mast cells and basophils. The remainder of type B reactions have an immunological basis which is the requirement for true drug allergy.

The term drug allergy is used loosely by the lay population, but also by health professionals. While most adverse reactions to drugs are not immunologically mediated, they are often recorded as 'allergy' in medical notes. This is a particular problem for antimicrobial drugs, especially penicillins, when a label of allergy is given in childhood following an unspecified adverse event. The distinction is important, since it will have implications for future management of the patient and an incorrect label may result in withholding optimal treatment for subsequent illness. If an allergic response to a drug is confirmed, then desensitization (induction of drug tolerance) may be an option if the drug or drug class is likely to be needed for further treatment (such as penicillins or drugs used in anaesthetic practice).

The reviews in this issue explore several aspects of the clinical problems posed by suspected drug allergy. Many allergic responses to drugs have more than one mechanism, and our understanding of the underlying immunological pathways has advanced considerably in recent years. The well established classification of hypersensitivity reactions developed by Gell & Coombes (types I–IV hypersensitivity) does not fully encompass the mechanisms of allergic responses that are being uncovered. The newly elucidated mechanisms of T-cell stimulation that underpin allergic responses to drugs are explored in the paper by Adam *et al*. [1]. Thong & Tan [2] discuss the epidemiology of drug allergy and factors that may predict increased risk. This remains a very imperfect science, except when a genetic basis has been uncovered which opens up the possibility of predictive testing before a drug is selected. The value of HLA typing before prescribing abacavir is considered by Chaponda & Pirmohamed [3] in their comprehensive review of allergic reactions to HIV therapy.

Most true allergic reactions to drugs affect the skin (although other organs may also be involved), but serious cutaneous reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome are rare. Skin responses caused by drug allergy often resemble those occurring in the absence of drug exposure, and a detailed medical history exploring the temporal relationship to the drug exposure is vital. The range of allergic skin responses, their identification, causes and treatment are described by Ardern-Jones & Friedmann [4]. By contrast, non-cutaneous severe allergic reactions such as anaphylaxis are infrequent, perhaps accounting for only 10% of all allergic responses. Importantly, even these reactions can be mimicked by pseudoallergic responses to drugs.

The problems posed by peri-operative anaphylaxis, when several drugs have been used concurrently or sequentially, are explored by Eren & Nel [5]. Differential diagnosis, immediate management and subsequent investigation to identifying the cause are fully described. Practical approaches for dealing with patients who have suspected drug allergy is covered by Frew [6], who examines the predictive value of provocation testing and gives pragmatic advice on the approach to managing patients in different clinical situations.

Together, these reviews provide an insight into the rapidly developing understanding of the mechanisms, identification and management of drug allergy. They also give clear guidance on selecting patients for further investigation, and when to consider induction of drug tolerance.

Competing Interests

There are no competing interests to declare.

REFERENCES

1 Adam J, Pichler WJ, Yerly D. Delayed drug hypersensitivity: models of T-cell stimulation. Br J Clin Pharmacol 2010; 71: 701–7.

2 Thong BY-H, Tan T-C. Epidemiology and risk factors for drug allergy. Br J Clin Pharmacol 2010; 71: 684–700.

3 Chaponda M, Pirmohamed M. Hypersensitivity reactions to HIV therapy. Br J Clin Pharmacol 2010; 71: 659–71.

4 Ardern-Jones MR, Friedmann PS. Skin manifestations of drug allergy. Br J Clin Pharmacol 2010; 71: 672–83.

5 Nel L, Eren E. Peri-operative anaphylaxis. Br J Clin Pharmacol 2011; 71: 647–58.

6 Frew A. General principles of investigating and managing drug allergy. Br J Clin Pharmacol 2011; 71: 642–6.