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DRUG-INDUCED ANAPHYLAXIS

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Anaphylaxis is a severe, life-threatening, generalized or systemic hypersensitivity reaction. It is a clinical diagnosis usually manifested by acute generalised erythema, flushing, urticaria, angioedema, dyspnoea, dysphonia, vomiting, abdominal pain, diarrhoea or syncope. Hypotension and severe bronchospasm do not have to be present for a reaction to be classified as anaphylaxis, although asthma is an important risk factor for fatal anaphylaxis. Anaphylactic-type reactions may be classified as allergic or non-allergic anaphylaxis. Allergic anaphylaxis is further classified as immunoglobulin E (IgE) or non-IgE mediated reactions. However, the terms "anaphylactoid" and "anaphylactic" remain commonly used in differentiating non-IgE mediated (including other immunologically mediated mechanisms) and IgE mediated reactions respectively.

The true incidence and prevalence of drug-induced anaphylaxis in the general population is unknown. The prevalence described among prospective and retrospective studies varies from 11% - 49% as most of these studies were either based on children or adults from specialized allergy clinics, inpatient hospitalizations or emergency room attendances for all causes of anaphylaxis. Similarly, the true mortality rate from drug-induced anaphylaxis is also unknown although the mortality from all causes of anaphylaxis was 2% in the International Collaborative Study of Severe Anaphylaxis.

The common causes of drug-induced anaphylaxis include penicillin and neuromuscular blocking agents and other anaesthetic agents given during the perioperative period. Although the majority of non-steroidal anti-inflammatory drugs (NSAID) and radiocontrast media (RCM) hypersensitivity reactions are due to non-allergic anaphylaxis, there is increasing evidence of IgE-mediated mechanisms in RCM hypersensitivity reactions.

The diagnosis of anaphylaxis remains clinical. Although the finding of an elevated serum total tryptase level may be helpful in unexplained cases of cardiorespiratory collapse, tryptase levels may remain normal in fatal anaphylaxis. The aetiology of anaphylaxis is determined from the clinical history followed by quantitative measurement of allergen-specific IgE antibodies in serum (Pharmacia® CAP System fluorescent enzyme immunoassay, FEIA) or skin prick tests (SPT) and intradermal tests (IDT) 4-6 weeks following the acute reaction. There are several limitations in the diagnosis of the putative drug. For measurement of drug specific-IgE tests, only a few (penicillins and succinylcholine) are commercially available. For skin tests, only the penicillins, cephalosporins and neuromuscular blocking agents have been the most extensively validated. Patch testing may be used as an adjunct in the diagnosis of delayed hypersensitivity reactions to drugs and has no role in the diagnosis of drug-induced anaphylaxis. Drug provocation tests are generally contraindicated in drug-induced anaphylaxis.

In the acute management of suspected drug-induced anaphylaxis, besides the "ABC" of resuscitation (airway, breathing, circulation), the most important "life-saving" drug that should be administered is intramuscular epinephrine 0.2 ml to 0.5 ml of a 1:1000 (wt/vol) dilution (0.2 to 0.5 mg) in adults, or 0.01 mg/kg up to a maximum of 0.3 mg or 0.3 ml of 1:1000 (wt/vol) in children. The putative drug must be stopped immediately, although deciding which the putative drug is may be difficult in patients on multiple, potentially "immunogenic" drugs.

Prevention involves educating the patient/family/care-givers on his/her drug allergy and other potentially cross-reacting drugs, provision of a Medic Alert card/bracelet, and alerting national drug regulatory authorities as part of local/regional pharmacovigilance practices. Increasingly, the use of electronic medical records and electronic prescribing will play an important role in preventing accidental prescription of drugs to which patients have developed allergies to, and generating more accurate epidemiological data on drug allergies. Epinephrine autoinjectors are not clinically indicated in drug-induced anaphylaxis as future episodes are easily preventable.