

Today drugs are being prescribed by clinician as best per their knowledge but without proper consideration of drug allergy by most. It is estimated that drug allergies constitute about 10 % of all drug side effects. Adverse drug reactions (ADRs) are broadly divided into predictable (related to pharmacologic actions of the drug in otherwise normal individuals) and unpredictable reactions (related to individual's immunological response and, on occasion, to genetic differences in susceptible patients). Drug allergy is a type of unpredictable reaction. The World Allergy Organization (WAO) in 2003 defined 'drug allergy' as an immunologically mediated drug hypersensitivity reaction. Drug allergies may be immediate (mediated by Ig E) or delayed (non Ig E mediated), with T-cell mediated reactions largely represented in the latter.

Diagnosis

Diagnosis of drug allergy is difficult as many times it resemble part of disease process such as fever, joint pain and rash. A good detailed history of the onset of sign and symptoms along with its relationship to drug intake is very important. Appearance of sign and symptoms after drug intake and disappearance following discontinuation increases the suspiciousness of drug allergy.

Drug allergy usually occurs in the presence of previous/adequate sensitization to the drug. Most drug allergies develop after 5 to 7 days of exposure to the drug. However, some may develop only after 2 to 6 weeks of exposure to the drug. When a drug allergy develops immediately after the first dose of the drug, the allergic reaction may be due to previous exposure and sensitization to the drug or to previous sensitization from molecules similar to those in the putative drug.

Manifestation of drug allergy includes skin rashes like maculo-papular, exanthema, eczema, photodermatoes and Steven-Johnson syndrome and toxic epidermal necrolysis in more severe cases. Severe angioedema of face, lips, tongue, uvula along with bronchospasm and fall in blood pressure are anaphylaxis manifestation of drug allergy. Drug-induced hypersensitivity syndrome (DIHS) comprises maculo-papular rash developing ≥ 3 weeks after starting therapy with a limited number of drugs, lymphadenopathy, fever ($\geq 38^\circ\text{C}$), leukocytosis and elevated liver enzymes. Skin prick test, patch test and provocation test are being used to establish the drug allergy and these are done within 4 to 6 weeks of reaction.

Frequently implicated drugs in allergic reaction

Drugs like aspirin (other analgesics-antipyretics), penicillins and cephalosporins, sulfonamides, antituberculous drugs, nitrofurans, antimalarials, griseofulvin, sedative-hypnotics, anticonvulsants, anesthetics (local and general), phenolphthalein, antipsychotic tranquilizers, antihypertensive agents (hydralazine), antiarrhythmia agents (quinidine, procainamide), Iodinated contrast media, antisera and vaccines, organ extracts (ACTH, insulin), heavy metals (gold), allopurinol, penicillamine, antithyroid drugs are commonly involved in allergic reaction.

Risk factors for drug allergy

It is believed that intermittent and repeated administrations appear to be more sensitizing than uninterrupted treatment and parenteral administration appears to be more sensitizing than the oral route. Females appear more likely to develop drug allergies than males. With regards to age groups, drug allergy is indeed lower in children. Although children are less likely to be exposed repeatedly to drugs necessary for sensitization to occur, widespread prescribing of certain drugs may theoretically increase the risk for sensitization in certain groups of children, for instance antibiotic sensitization in children with chronic diseases. Concomitant disease states may predispose to the development of allergic drug reactions by altering metabolic pathways and inducing variations in the immunologic responses to drugs. Atopy does not appear to be a major risk factor for most drug allergies.

Treatment

Withdrawal of suspected drug is first step. Anti-histamines is sufficient in most cases of IgE induced reaction. Systemic corticosteroids may be used to prevent the delayed-phase reaction in acute anaphylaxis and to prevent/treat associated angioedema and lower airway inflammation. But in cases of anaphylaxis, management has to be more prompt and aggressive to save patient life. If drug continuation is essential even after its allergic manifestation, drug desensitization can be considered in those subjects in which small amount of drugs are administered in incremental doses to allow body to tolerate the therapeutic dose.

Prevention

Patients and family members should be educated on the generic names of the drugs they are allergic to and other potentially cross-reacting drugs. In addition, the patient should be given a Medical Alert card to avoid future accidental prescription of any drugs to which he or she is allergic.

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