Abstract and Introduction

**Abstract**

**Purpose of Review:** Hypersensitivity drug reactions are but one of the many different types of adverse drug reactions. They may be potentially life-threatening, prolong hospitalization, affect drug prescribing patterns of physicians and result in socioeconomic costs. This review summarizes current knowledge on the incidence, prevalence, mortality and risk factors for these reactions in different populations.

**Recent Findings:** Hypersensitivity reactions represent about one third of all adverse drug reactions. Adverse drug reactions affect 10-20% of hospitalized patients and more than 7% of the general population. Severe reactions including anaphylaxis, drug hypersensitivity syndromes, Stevens Johnson syndrome and toxic epidermal necrolysis are also associated with significant morbidity and mortality. Although several risk factors have been identified, their clinical importance has not been fully understood. Future progress in immunogenetics and pharmacogenetics may help identify populations at risk for specific types of reactions.

**Summary:** Well designed epidemiological studies on hypersensitivity drug reactions are lacking as most studies have been on adverse drug reactions. Such studies will be helpful in identifying patients at risk of developing such reactions, in particular severe reactions, and implementing early preventive measures.

**Introduction**

Adverse drug reactions (ADRs) are regarded as an important public health problem as they may be potentially life-threatening. An ADR is defined by the World Health Organization as a noxious and unintended response to a drug that occurs at a dose normally used in man.[1] However many other definitions and different classifications have been proposed.[2-5,6] The classical pharmacological classification of ADRs by Rawlins and Thompson[7] separates these into two major subtypes: type A reactions, which are dose dependent and predictable, and type B which are not dose dependent and unpredictable. This classification was further extended to include other subtypes[8-10] in order to facilitate the inclusion of reactions that did not find their place in subtypes A or B. Recently a new classification was proposed by Aronson and Ferner[11] which includes three major parameters (dose responsiveness, time course and susceptibility). Although more accurate, this is somewhat complex to use in everyday clinical practice.

The majority of ADRs are type A reactions. Type B reactions comprise approximately 10-15% of all ADRs and include hypersensitivity drug reactions. According to the Nomenclature Review Committee of the World Allergy Organization, drug allergy refers to a hypersensitivity reaction for which a definite immunological mechanism, either IgE or T-cell-mediated, is demonstrated.[12] ADRs that clinically resemble an allergy but for which an immunological process is not proven should be classified as non-immune hypersensitivity reactions.[12] This is important because most of the available epidemiological studies to date refer to ADRs in general rather than drug allergy. In addition, those that studied drug allergy relied on clinical history of a temporal relationship between ingestion of the putative drug and symptoms/signs without demonstration of drug-specific IgE or T-cell-mediated mechanisms using in-vivo or in-vitro tests. This is due to the lack of standardized tests for many of these drugs and limitations of drug provocation tests.

**Prevalence and Incidence of Hypersensitivity Drug Reactions**

Hypersensitivity drug reactions are responsible for significant morbidity, mortality and socioeconomic costs that are often underestimated. Current epidemiological data have to be regarded carefully as different studies used different populations (either adult or paediatric populations or both, inpatients or outpatients), different definitions of ADRs/drug