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Commentary

Drug Reactions and Their Toxins

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DESCRIPTION

Drug reactions can be of two types: Allergic, which occurs when there is "hay fever" or bee stings and is related to the direct toxic effect of the drug on the body system or organ. Allergic drug reactions are not dose dependent and are completely unpredictable. An example of an allergic drug reaction is a rash (also known as urticaria). Drug toxicity, on the other hand, is related to the dosage and duration of frequently used drugs. In some cases, it is impossible to determine whether a person is having an allergic or toxic reaction; For example nausea and vomiting can be a symptom of anything. Drug reactions can range from minor irritation to a fatal condition.

If an allergic reaction to a drug occurs, it is advisable not to take that medication again (in some cases may be desensitized if the use of a particular drug is absolutely necessary). Toxic effects of drugs can usually be managed by discontinuing or reducing the dose. It is imperative that patients report any new symptoms to their physician while taking the medication. However, here he/she would like to briefly discuss the drug reaction and their toxicity related to drug development.

The cost of developing pharmaceuticals has been rising over the years and the average cost of developing a profitable drug is estimated at >US $ 1.8 billion. However, the graph for the number of newly approved drugs per year is relatively flat. Difficulty in validating goals and increasing control barriers in reaching increasingly complex disease areas are some of the reasons for the problem. All compounds are toxic in high doses and are all safe in very small doses using the Paracelsus formula. What we are considering here are not accidental drug overdoses, but toxicity and adverse events in doses related to patients using the drug. The context of toxicity is how one avoids poisoning or develops these irresponsible alternative compounds that have an impact on how one approach common problems with heart and hepatic toxicity.

The first situation of toxicity is target (or mechanism-based) toxicity. That is, toxicity is due to the interaction of the drug with the same target that produces the desired pharmacological response. The concept is not competitive inhibition, but the same biological response that a drug exhibits when bound to a target, producing both powerful and toxic effects. As a rule, this type of toxicity is difficult to manage as all classes of compounds developed to treat the disease are toxic. You may need to change the target of your illness. However, another strategy has been shown for statins. The second situation of drug toxicity is hypersensitivity and immune response. For example, allergic reactions to penicillin have been known for many years. A concept developed primarily on the basis of Landsteiner's pioneering research is that drugs (or their metabolites) react with proteins (as haptens) in the body to induce antibodies and immune responses. In this example (penicrine), the chemical is not completely stable and may covalently bind to the protein and initiate antibody production. The third situation of drug toxicity is exotoxin. The problem here is that the drug is not specific in its interaction. Binding to alternative targets is a cause of toxicity. With current knowledge of bioregulatory pathways and the complexity of multigene families (such as protein kinases), it is not surprising that drugs may not be completely specific. The fourth situation of drug toxicity is bioactivation. Many drugs are converted (often as "reactive metabolites"). The fifth context of toxicity is a specific response. Idiosyncratik means "individual". It is well understood. Such answers have very few (if available) of these few (if available) basic science and practical applications.

In conclusion, there are three main issues. (1) Identification of useful biomarkers of toxicity. (2) Establishing *in vitro/in vivo* relationships; (3) Associate animal models with human toxicity. There are still many known discrepancies in the effects of chemicals on laboratory animals and humans.

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