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Commentary

Classification, Prevention and Treatment for Adverse Drug Reactions (ADRs)

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DESCRIPTION

Adverse drug reactions (ADRs) remain a challenge in modern medicine, especially given the increasing complexity of treatments, the aging population, and the increasing number of multiple diseases.

An Adverse Drug Reaction (ADRs) is significantly harmful or unpleasant reactions resulting from procedures associated with drug use. Adverse effects usually predict the risk of future administration and prevent or specific treatment, or change the dosing regimen or product. It also includes suspicious reactions to unused drugs. This change may change reporting and monitoring by manufacturers and drug regulators, but in the clinical setting, it affects the approach to managing ADR.

In Seminal research conducted in the United States and the United Kingdom in the late 20th and early 21st centuries, ADR is a common clinical symptom, including post-discharge as a cause of unplanned hospitalizations that occur during hospitalization. The incidence of ADR is relatively stable over the long term, and despite various preventive efforts, 5% to 10% of patients may develop ADR at admission, hospitalization, or discharge. The frequency of events is necessarily related to the method used to identify such events, and the majority of ADRs do not cause serious systemic symptoms. Nevertheless, the frequency of this potential harm is cautious as it is associated with morbidity and mortality, is economically costly, and can potentially adversely affect the relationship with the prescribing patient.

Drugs specifically related to ADR-related hospitalization include antiplatelet drugs, anticoagulants, cell growth inhibitors, immunosuppressant, diuretics, antidiabetics, and antibiotics. Bleeding is often the cause of fatal ADRs, most commonly antithrombotic/anticoagulant drugs in combination with nonsteroidal anti-inflammatory drugs (NSAIDs).

Classification of adverse drug reactions

ADRs are classified into two types:

1. Type A reactions: These are sometimes referred to as augmented reactions which are 'dose-dependent' and predictable on the basis of the pharmacology of the drug

2. Type B reactions: These are bizarre reactions which are idiosyncratic and not predictable on the basis of the pharmacology.

Although still widely used, this basic classification includes chronic adverse events associated with cumulative drug exposure (eg, osteoporosis with long-term corticosteroid treatment) or a withdrawal reaction (eg, central activity) does not work for all ADRs (antihypertensive drugs). An alternative, perhaps more comprehensive classification scheme, is "DoTS," which includes drug doses, time course of response, and associated susceptibility factors (such as genetic, pathological, and other biological differences). In addition to ranking responses, DoTS has the advantage of helping to consider the actual diagnosis and prevention of ADR.

Prevention of adverse drug reactions

Some ADRs are unpredictable, but anaphylaxis in patients after previous successful exposure to B. penicillin-containing antibiotics, many can be prevented by appropriate prediction and monitoring. Preventability (or preventability) usually refers to cases where the drug treatment plan is inconsistent with current evidence-based practices or is unrealistic given known circumstances. Epidemiological studies tend to show that one-third to one-half of ADRs is (at least potentially) preventable, but preventability is much easier to diagnose with hindsight. However, interventions that reduce the likelihood of ADR can be an important way to reduce the risk of harm to the patient.

Two basic steps that may be followed to prevent an ADR occurring

1. Identify the subgroup of patients who are likely to be susceptible to the adverse effect and modify the treatment choice accordingly.

2. Ensure the treatment plan mitigates any possible adverse effects.

Identifying susceptibility: Knowing a patient's susceptibility can influence prescribing decisions and reduce the risk of ADR. The patient's medication history identifies the previous ADR and thus eliminates re-exposure to the drug. In other cases, susceptibility factors such as age, gender, pregnancy status, and ethnicity can help predict the risk of developing ADR. For example, patients of

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African or Caribbean descent are blocked by angiotensin II receptors instead of angiotensin converting enzyme (ACE) inhibitors because of the risk of ACE inhibitor-induced angioedema. It suggests that you need to use medicine. Pharmacogenomics is beginning to make more personalized medical decisions by predicting who is susceptible to a particular ADR.

Clinical decision support systems available at the point of care can inform practitioners of any patient specific cautions to treatment or additional monitoring requirements to reduce the risk of harm. A detailed discussion is beyond the remit of this paper, but practitioners should not rely on decision support as systems vary widely in their provision of information from absence of relevant alerts to information overload leading to alert fatigue.

Treatment plan for adverse drug reactions

Careful and safe prescribing is essential to reduce errors that can contribute to side effects. Treatment plans should take into account and minimize any possible side effects. For example, co-prescribing folic acid with methotrexate reduces the incidence of adverse events due to folate deficiency; and monitor electrolytes and renal function during nephrotoxic or diuretic therapy. All of these examples can prevent emergency treatment side effects, although they may be limited because recommendations for follow-up are often incomplete or unclear. It is important to remember that careful prescribing can also avoid drug use altogether, and that treatment plans should always consider non-pharmacological or conservative options.

Overall, a systems approach, encompassing multiple strategies, and involving patients and all healthcare professionals is needed to reduce the risk of harmful ADRs and prevent reactions that occurs in practice.