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Pharmacists in the Management of Drug Interaction: A Review

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Abstract: Newer drugs are reaching developing countries in greater number and more quickly. So the speed of drug discovery may leads to less information regarding the newer drugs. The unavailable data about drugs leads to developing drug related problems. New interactions between medications are increasingly reported. The pharmacists are considered as medicine expertise and should know the up to date and detailed knowledge about drugs which are arrived newly in the market. This will help the pharmacists to reduce or manage the drug interaction. Drug interactions are complex and chiefly unpredictable. A known interaction may not occur in every individual. This can be depends on several factors include: genes, physiology, age, life style, drug dose, duration of combined therapy etc. The pharmacists plays important role in healthcare team and promote quality of life of patient by communicating with physician and patients. The aim of this paper is to highlight the role of pharmacists in management of drug interactions.
Keywords: Drug Interaction, pharmacists

INTRODUCTION

Drug is defined as a physiologically active substance used in the diagnosis, mitigation, treatment or prevention of a disease or relief of discomfort. Drugs are used to achieve beneficial therapeutic effects, but they can also lead to many undesirable consequences like reduced, null or increased drug effect. This can be due to interactions of various drugs with each other when administered together. Now a day there is big competition in the field of production and marketing of medicines. As new drug approvals occur ever increasing speed, there may be less information available about their interaction & adverse event. That is one of the major reasons for developing drug interaction. The occurrence and the severity of a drug interaction is affected by many factors such as the number of prescribed drugs, treatment duration, patient's age, disease stage, and the number of physicians prescribing the drugs. Critically ill patients are particularly prone to drug interactions, as they have several related risk factors such as higher age, multidrug therapy, and long duration of hospital stay [1].

Five to twenty percent of serious adverse drug reactions due to DDIs have been reported to result in hospitalization or death. Drug interaction is a situation in which a substance (usually drug) affects the activity of another drug when both are administered together. It is not only prescribed medicines that can interact. Food, alcohol etc can also interact with medicines that will increase or decrease the ADME of a drug [2]. Drug interactions are usually divided into 2 groups

- Pharmacodynamic Interaction
- Pharmacokinetic Interaction

Pharmacodynamic Interaction

In this type of interaction, effect of one drug is altered by another drug at its site of action. They includes: ***antagonism, synergism and potentiation.***

Antagonism means that one drug reduces or blocks the effect of another.

Synergism means that two or more drugs work together against one target, producing an effect that is greater than the individual effect of the two drugs together (like combining two plus two and getting five).

Potentiation means that drug a boosts the effects of drug B, often by increasing the levels of drug B in the blood [3].

Pharmacokinetic Interaction

A precipitant drug may alter any portion of an object drug's pharmacokinetic profile. Absorption, distribution, metabolism, or elimination of the object drug may be affected and can result in either modification or minimization of the object drug's intended pharmacological response and a potential adverse event [4].

MANAGEMENT OF DRUG INTERACTION

Association of pharmacist and clinician can provide a strong base for quality assured patient care. The presence of a pharmacist on the ward became a revolutionary feature of developments in the pharmacy field. Pharmacists participate in ward rounds with physicians and provide their suggestions or recommendations wherever needed. The physicians prescribe medicines and the pharmacist checks the prescription to ensure rational use of drugs. They check whether there is an indication for the drug, is it the right drug/dose/duration/dosage/time, etc. If there is any deviation from these, they make appropriate interventions, inform the prescriber and document the interventions. Clinical pharmacists can contribute their efficiencies in medication review, identification of drug related problems, therapeutic recommendations and promotion of medication compliance. They obtain medical and medication history, check medication errors including prescription, dispensing and administration errors, identify drug interactions, monitor adverse drug reactions (ADR), suggest individualization of dosage regimen, provide patient counseling, etc. Pharmacists should have an up-to-date knowledge in the changing world of medicine so that they can effectively participate in the identification and management of drug interactions [5, 6].

ROLE OF PHARMACISTS IN MANAGEMENT OF DRUG INTERACTION

After identifying potential drug interactions in susceptible patients, the pharmacists can play a major role in minimizing drug interactions by various methods. It includes:

Avoiding the drug combination which causes the drug interaction

Drug interaction occurs when two drugs are administered together. This can be reduced by discontinuation of interacting drugs or select an alternative drug which possess same effect in the treatment of particular disease.

Adjusting the dose

It is possible to give two interacting drugs safely if we adjust the dose of these drugs.

By changing dosing intervals to avoid interaction

Some drug interactions can be avoided by giving the object drug atleast 2 hours before or 4 hours after the precipitant drug so that object drug can be absorbed into the circulation before the precipitant drug appears.

Monitoring for early detection of drug interaction

In some situations, it is necessary to monitor clinical and laboratory parameters for the detection of interactions.

Improve computerized screening

Computerized drug interaction screening will also help to identify and reduce a number of clinically significant drug interactions [7].

GUIDELINES FOR THE MANAGEMENT OF DRUG INTERACTIONS

- Tell the patient to read the prescription label on the container and if you do not understand something or you need more information ask your pharmacist or physician.
- Warn the patient, if any unwanted action produced after the administration of interacting drug should be reported to concern physician or any other healthcare team.
- Review the past and present medication of the patient to identify, resolve, and prevent medication related problems, including adverse drug events.
- Counseling the patient about the administration of drug.
- In case of pregnant and breastfeeding mothers extra care should be taken before prescribing any medication.
- Close monitoring of patients who are at more risk for developing drug interactions.
- Tell the patients to check the labels of your medications for any warnings and look for the "Drug Interaction Precaution [8, 9].

CONCLUSION

Interaction between foods and drugs can have profound influence on the success of drug treatment and on the side effect profiles of many drugs. The moderate and severe DI were more prevalent, in virtue of the profile of the patients and the complexity of the pharmacotherapy, requiring an integrated execution of the health team especially pharmacist to better identify and prevent their occurrence. Pharmacists must take responsibility for monitoring for drug interactions and notifying the physician and patient about potential problems.

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