ROLE OF PHARMACIST IN PREVENTION AND MONITORING OF ADVERSE DRUG INTERACTIONS

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ABSTRACT

Being a chemical moiety every drug has some adverse interactions but that particular adverse interactions of drug can be eliminated or prevented if one can know rational use of drug so its role of pharmacist to make aware the people about rational use of drug. The present review is just focused on role of pharmacist in order to prevent and monitor adverse drug interactions.

KEYWORDS: Drug, Pharmacist, Rational etc.

INTRODUCTION

Adverse drugs reactions (ADRs) are noxious, unintended and undesirable effects that occur as a result of drug treatment. ADR simply describes harm associated with use of drug at a normal dosage during normal use. ADRs may occur at a single dose or prolonged use of given drug.[1,4]

Statistics to ADRs shows that

- 4th leading cause of death.
- 5% adults show allergic reaction to one or more drugs.
- 6-10% of ADRs are result from drug allergy.
- 3% of hospital admissions are due to ADRs.
- 28% of ADRs are preventable.
- ADRs kill an estimated 1,00,000 patients per year.

Causes of ADRs

- Wrong dose at wrong time.
- Overdose.
- Allergy.
• Interaction between two or more drugs.
• Prescription error.
• Genetics.

The Risk to Benefit Ratio

All drugs having harmful as well as beneficial effect that may be related or unrelated to the principles of pharmacological actions of drug. So ADRs are concerned with drug regulatory authorities who establishing safety as well as efficacy of drug before drug enters into market. Every drug will be beneficial when we follow five simple Rights as follows
✓ Right Drug
✓ Right Dose
✓ Right Time
✓ Right Patient
✓ Right Route.\cite{1}

Role of Pharmacist in Prevention and Monitoring of ADRs

1) Listen to your patient

Listen to patient on concern about drug treatment to know which type of adverse effects are observed by patient during or after a drug treatment because most of adverse drug effect can be predicted by known pharmacology of drug so there is no need to worry about such adverse effects of drug and it’s a role of pharmacist to listen patient during or after a drug treatment either to continue or to stop drug treatment or to use another alternatives for same disease conditions.\cite{2}
2) Alert the patient

Let you know them suspected drug reaction occur during drug treatment. For example while taking NSAIDs like Aspirin pharmacist should alert the patient about gastric irritations, hyperacidity produced by Aspirin so such drug should be administered after a meal or some drugs like omeprazole should be administered with aspirin. Another example is Tyramine containing food like cheese, butter, banana should be avoided during MAO inhibitor therapy it may cause hypertension crisis so it’s a role of pharmacist to alert the patient about every adverse effect of drug treatment.\cite{3,9}
3) Dosage

“All drugs are poisons: The dosage makes it either a poison or remedy”

Dose is a crucial part of drug treatment to achieve desired pharmacological action. Sometimes patient forgot to take a proper dose according to prescription of doctor and next time they took double dose to match with previous one in such cases severe adverse drug reactions may be observed so it’s a role of pharmacist to aware the patient to follow dosage regimen according to doctor’s advice only.\textsuperscript{[3,4]}

4) Assess Causality

Assess the relationship between drug and suspected reactions.

Being a pharmacist it’s our role to predict relationship between drug and suspected reactions. Near about 75-80% ADRs are caused by predictable effect and remaining 20-25% ADRs are caused by unpredictable effects. So it’s somewhat easy to predict suspected drug reactions.
Predictable drug effects are
✓ Dose dependant
✓ Related to drug action
✓ Occurs in normal patient
✓ Overdose toxicity
✓ Drug interactions
✓ E.g. Bleeding with anticoagulants, Sedation with anxiolytics.

Unpredictable drug effects are
✓ Dose independent
✓ Not related with drug action
✓ Related with immune response (allergy).
✓ E.g. Hepatotoxicity with Paracetamol, Tinnitus with Aspirin, Anaphylaxis with Penicillin.\textsuperscript{[5]}

5) Literature review

Study literature of drug to know ‘Why’ and ‘How’ ADRs are observed.

As a integral part of health care system every pharmacist should know every parameters of drug like Pharmacokinetic study, pharmacodynamic study, types of adverse drug reactions, causes of drug reactions, factors affecting drug treatment, factors modifying drug action etc to know or to predict “Why” and “How” ADRs are observed.\textsuperscript{[3]}
6) Counseling

Aware the patient about every aspect of ADRs.

Counseling of the patient is one of the most important part to monitor ADRs.

**Pharmacist should counsel the patient by following ways**

- Aware the patient about Disease condition
- Aware the patient about type and causes of ADRs
- Let you know them beneficial as well as hazardous effects of drug treatment
- Instruct them to follow drug treatment according to doctors instructions only
- Do not modify dose and duration of drug treatment
- Avoid misunderstandings regarding drug treatment
- Let you know them contraindications of drugs specifically during pregnancy and in lactating mother.[9]

7) Documentation

Pharmacist should record all the documents related with ADRs.
Documentation used for recording ADRs

- Source documents- Patients medical records, X ray and diagnostic reports etc.
- Adverse event/serious adverse event forms
- Case report form
- Serious ADR.[9]

8) Reporting
Pharmacist should report all the events of ADRs to Doctors, manufacturer, drug regulatory authorities and pharmacovigillance team to study post marketing adverse effect of drugs.[9]

REFERENCES
