Role of Clinical Pharmacist in Detecting Drug-related Problems (DRPs)

Pharm.D.Ahmed Mokhanjef

Bachelor of Doctor Pharmacy(Pharm.D)

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Overview

- Drugs are a binary therapeutic instrument.

- They are meant to:

– Cure ,prevent or diagnose diseases ,signs or symptoms

However ,there is a risk that incorrect use could result in patient morbidity or even death.

- As well as increased health care expenditure,

which in turn affect both patients and society

Overview about Drug Therapy Problems

Drug therapy problems(DRP)are the clinical domain of the pharmaceutical care

practitioner. The purpose of identifying DRP is to help patients achieve their goals of

therapy and realize the best possible outcomes from drug therapy.

Describing drug therapy problems so that you can learn to identify ,resolve ,and most

importantly ,prevent drug therapy problems in your practice

Components of a Drug Therapy Problem

To identify ,resolve ,and prevent drug therapy problems , you should understand howPa tients with drug therapy problems present in the clinical setting. To know:

1. Undesirable or risk event experienced by the patient. The problem can take the form of a medical complaint , sign ,symptom ,diagnosis ,disease ,illness ,impairment , disability ,abnormal laboratory value ,or syndrome. The event can be t he result of physiological ,psychological , sociocultural ,or economic conditions

2. The drug therapy(products and/or dosage regime n)associated with the problem.

3. The relationship that exists(or is suspected to exis t)between the undesirablePati ent event and drug therapy.

This relationship can be

a)The consequence of drug therapy ,suggesting a direct association or even a cause-and-effect relationship

b)The need to add or modify drug therapy for its resolution or prevention.

Patient problems categorized into one of seven types of drug therapy problems. These include any and all side effects, toxic reactions, treatment failures, or the need for additive, synergistic, or preventive medications, as well as adherence problems and noncompliance.

1_The drug therapy is unnecessary because the patient does not have a clinical indication at this time.

2_Additional drug therapy is required to treat or prevent a medical condition in the patient.

3_The drug product is not being effective at producing the desired response in the patient

4_The dosage is too low to produce the desired response in the patient

5_The drug is causing an adverse reaction in the patient.

6_The dosage is too high, resulting in undesirable effects experienced by the patient.

7_.The patient is not able or willing to take the drug therapy as intended

Notes

The first two categories of drug therapy problems are associated with the indication.

The third and fourth categories of drug therapy problems are associated with

effectiveness. The fifth and sixth categories of drug therapy problems are associated

with safety. The seventh category deals with patient Adherence.

Drug related needs	*Categories of drug therapy problems*
indication	*1. Unnecessary drug therapy*
	2. Needs additional drug therapy
Effectiveness	*3. Ineffective drug*
	4. Dosage too low
Safety	*5. Adverse drug reaction*
	6. Dosage too high
Adherence	*7. Nonadherence or noncompliance*

Remember ,in pharmaceutical care practice ,decisions concerning an INDICATION are addressed first ,then EFFECTIVENESS can be established ,followed by SAFETY considerations. These categories of drug therapy problems describe the action(or result or outcome)that the drug therapy is having on the patient. Finally ,ADHERENCE problems represent the willingness and ability of the patient to use the medication as intended.

Categories and Common Causes

Note: Drug therapy problems can be resolved and prevented by understood the cause of the problem.

1) Unnecessary drug therapy

a) Duplicate therapy: multiple drug products are being used for a condition that requires only single drug therapy.

b) No medical indication at this time: there is no valid medical indication requiring drug therapy at this time.

c) Nondrug therapy more appropriate: the medical indication is more appropriately treated with nondrug therapy.

d) Addiction/recreational drug use: drug abuse, alcohol use, or smoking is causing the problem.

e) Treating avoidable adverse reaction: drug therapy is being taken to treat an avoidable adverse drug reaction associated with another medication.

2)Needs additional therapy

a)Preventive therapy :preventive drug therapy is required to reduce the risk of developing a new condition.

b)Untreated condition :a medical condition requires the initiation of drug therapy.

c)Synergistic therapy :a medical condition requires additional pharmacotherapy to attain synergistic or additive effects.

3) Ineffective drug

a) More effective drug available: the drug is not the most effective for the medical condition and a different drug is needed.

b) Condition refractory to drug: the medical condition is refractory to the drug product and a different drug is needed.

c) Dosage form inappropriate: the dosage form of the drug product is inappropriate.

d) Contraindication present: the drug product is contraindicated in this patient.

e) Drug not indicated for condition: the drug product is not an effective product for the indication being treated.

4) Dosage too low

a) Ineffective dose: the dose is too low to produce the desired response.

b) Needs additional monitoring: clinical or laboratory parameters are required to determine if the dosage is too low for the patient.

c) Frequency inappropriate: the dosage interval is too infrequent to produce the desired response.

d) Incorrect administration: the drug product was not administered by the appropriate route or method.

e) Drug interaction: a drug interaction reduces the amount of active drug available resulting in lack of effectiveness in this patient.

f) Incorrect storage: the drug product was stored incorrectly and lost potency.

g) Duration inappropriate: the duration of the drug therapy is too short to produce the desired response.

5) Adverse drug reaction.

a)Undesirable effect :the drug product causes an undesirable reaction that is not dose related.

b)Unsafe drug for the patient :a safer drug product is required due to patient risk factors.

c)Drug interaction :a drug interaction causes an undesirable reaction that is not dose related.

d)Incorrect administration :the drug product was administered by the incorrect route or method resulting in an adverse reaction.

e)Allergic reaction :the drug product caused an allergic reaction.

f)Dosage increase/decrease too fast :the drug dosage was administered or escalated too rapidly resulting in an adverse reaction.

6)Dosage too high.

a) Dose too high: the dose of the drug is too high for the patient, resulting in toxicity.

b) Needs additional monitoring: clinical or laboratory parameters are required to determine if the dosage is too high for the patient.

c) Frequency too short: the dosing frequency is too short for the patient.

d) Duration too long: the duration of drug therapy is too long for this patient.

e) Drug interaction: a drug interaction increases

the amount of active drug available resulting in toxicity in this patient.

Keep in mind: if the patient stops taking a drug because it was not being effective, it is an effectiveness problem—not a compliance problem.

7) Adherence

i. Does not understand instructions: the patient does not understand how to properly take or use the drug product and dosage regimen.

ii. Cannot afford drug product: the patient cannot afford the drug therapy recommended or prescribed.

iii. Patient prefers not to take: the patient prefers not to take the drug therapy as instructed.

iv. Patient forgets to take: the patient does not remember to take sufficient doses of the medication.

v. Drug product not available: sufficient supply of the drug product is not available to the patient.

vi. Cannot swallow/administer drug: the patient is not able to swallow or administer the drug therapy as intended.

Drug Interactions

Drug–drug interactions are the most frequently medications associated with drug therapy problems.

Note that drug interactions can cause drug therapy problems in several categories.

Drug interactions can result in reducing the effectiveness of a medication, increasing the toxicity of a medication and/or resulting in an adverse drug reaction.

Stating Drug Therapy Problems

it is important to describe the patient's drug therapy problem in a concise, accurate, and informative manner.

A statement describing the patient's drug therapy problem(s) consists of three components:

- A description of the patient's medical condition or clinical state.
- The drug therapy involved (causing or solving the problem).
- The specific association between the drug therapy and the patient's condition.

This will not only determine the solution to be employed but often dictates other components of the care plan, including clinical and laboratory parameters to be evaluated and the schedule for follow-up visits.

The way in which a Drug therapy problem stated with more detail and specific Don’t

Simply it.

Prioritizing Drug Therapy Problems

- Once identified, each drug therapy problem can be prioritized as to the urgency with Which it needs to be addressed. This prioritization depends upon the extent of the potential harm each problem might inflict on the

patient, the patient's perception of the potential harm, and the rate at which this harm is likely to occur.

- Once the list of drug therapy problems is prioritized according to risk to the patient,

the list is reviewed and the following issues addressed:

- 1. Which problems must be resolved (or prevented) immediately and which can wait?

2. Which problems can be resolved by the practitioner and patient directly?

3. Which require the interventions by someone else (perhaps a family member, physician, nurse, care giver, or some other specialist).

Definition of DRPs

«An event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes»

Classification of DRPs

- DRPs are divided into:
  - Six main categories
  - Twelve subcategories

1. Drug choice

a) Need for additional drug (e.g. statin after MI)

b) Unnecessary drug (e.g. ABXs treatment finalized)

c) Inappropriate drug choice (e.g. Broad ABXs for simple infection)

2. Dosing

a) Too high dose

b) Too low dose

c) Sub-optimal dosing scheme (e.g. Diuretics given in the evening)

d) Sub-optimal formulation (e.g. slow release vs Immediate-release formulation)

3. Adverse drug reaction(ADR)

4. Interaction

5. Drug use

a) Drugs administered by health personnel

b) Drugs administered by the patient

6. Other

a) Need for/lack of monitoring

b) Lack of or unclear documentation of the drug chart/prescription

c) Other

Role of Clinical Pharmacist

The role of clinical pharmacists in detecting drug-related problems (DRPs) is pivotal in optimizing patient care and ensuring medication safety.

Clinical pharmacists are uniquely trained to identify, resolve, and prevent DRPs through their expertise in pharmacology,therapeutics, and patient-centered care

1. Comprehensive Medication Review

A. Medication Reconciliation:

• Compare a patient's current medications with newly prescribed therapies to identify discrepancies •

B. Polypharmacy Management

C. Drug-Drug and Drug-Disease Interactions

2. Identification of Specific DRPs

A. Untreated Conditions

B. Inappropriate Dosing

C. Adverse Drug Reactions (ADRs)

D. Non-Adherence

E. Therapeutic Duplication2.

3. Collaboration with the Healthcare Team

A. Inter-professional Rounds

B. Consultation Services

C. High-Risk Patient Monitoring

(e.g.pediatric,pregnant, or critically ill patients)

4. Patient-Centered Interventions

A. Medication Counseling

B. Deprescribing

C. Cost-Effective Therapy.

4. Documentation and Reporting

A. Clinical pharmacist recommendations

B. DRPs analysis

C. ADRs4.

Summary

Clinical pharmacists are frontline defenders against DRPs

• Combining clinical expertise with patient advocacy to ensure safe, effective, and individualized pharmacotherapy.

Their proactive interventions significantly enhance healthcare quality and reduce preventable harm.

Main References

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Prepared by

Pharm.D.Ahmed Abdularahman Mokhanjef

Supervisor by

Prof.Shahbaa Muslim Ismail