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PRESCRIPTIONS AND DRUGS: PRINCIPLES, TYPES, AND CLINICAL USE

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ANNOTATSIYA:

Prescriptions and drugs are essential components of modern medical practice. They ensure effective treatment, prevention, and diagnosis of diseases. Proper prescription writing and rational drug use significantly improve patient safety and treatment outcomes. This article provides a detailed overview of prescription principles, drug classification, pharmacokinetics, pharmacodynamics, routes of administration, adverse drug reactions, and clinical importance..

Introduction

Pharmacology is a fundamental branch of medicine that studies drugs and their effects on the human body. In clinical practice, correct prescription writing is essential to ensure safe and effective treatment. Improper use of drugs may lead to toxicity, resistance, adverse reactions, and even death. Therefore, healthcare professionals must strictly follow medical guidelines when prescribing medications.

Definition of Prescription

A prescription is a written legal document issued by a qualified healthcare professional to a pharmacist, authorizing the preparation and dispensing of medications. It contains important instructions such as:

- Patient information
- Drug name
- Dosage form
- Dose and frequency
- Route of administration
- Duration of therapy

A prescription must always be clear, accurate, and complete. Classification of Drugs

1. Based on Therapeutic Effect

- Analgesics – pain relief
- Antibiotics – bacterial infection treatment
- Antipyretics – fever reduction
- Antihypertensive drugs – blood pressure control
- Antidiabetic drugs – glucose regulation

2. Based on Mechanism of Action

- Receptor agonists
- Receptor antagonists
- Enzyme inhibitors
- Ion channel blockers

3. Based on Origin

- Natural drugs
- Synthetic drugs
- Semi-synthetic drugs

Routes of Drug Administration

Drugs can be administered through different routes depending on clinical needs:

- Oral (tablets, capsules, syrups)
- Intravenous (IV)
- Intramuscular (IM)
- Subcutaneous (SC)
- Inhalation
- Topical application

Intravenous administration provides the fastest effect, while oral administration is the most convenient.

Principles of Prescription Writing

Proper prescription writing ensures patient safety. Key principles include:

- Clarity and readability
- Correct drug selection
- Accurate dosage calculation
- Consideration of patient age and weight

- Avoidance of drug interactions
- Rational and evidence-based prescribing Rational Drug Use

Rational drug use means that patients receive appropriate medications in correct doses for an adequate duration at the lowest cost. It includes:

- Evidence-based medicine
- Avoidance of polypharmacy
- Monitoring side effects
- Patient education

This approach improves treatment effectiveness and reduces healthcare costs.

Pharmacokinetics

Pharmacokinetics describes how the body affects a drug through:

- Absorption
- Distribution
- Metabolism
- Excretion

These processes determine the concentration of drugs in blood and tissues over time.

Pharmacodynamics

Pharmacodynamics explains how drugs affect the body. It includes:

- Receptor binding
- Enzyme interaction
- Physiological response

It determines the therapeutic and toxic effects of drugs. Adverse Drug Reactions (ADRs)

Drugs may cause unwanted effects such as:

- Allergic reactions
- Toxicity
- Gastrointestinal disorders
- Liver and kidney damage

Careful monitoring is necessary during treatment to prevent complications. Clinical Importance

Prescriptions are essential in modern healthcare. Proper drug use reduces mortality, prevents complications, and improves quality of life. Incorrect prescribing can lead to serious medical consequences.

Conclusion

Prescriptions and drugs are fundamental in medical practice. Proper understanding of pharmacology, rational prescribing, and patient monitoring are essential for safe and effective treatment. Continuous medical education is necessary for healthcare professionals.

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