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Introduction

Pharmacotherapy

It is the use of medicine in the treatment of diseases, conditions and symptoms.

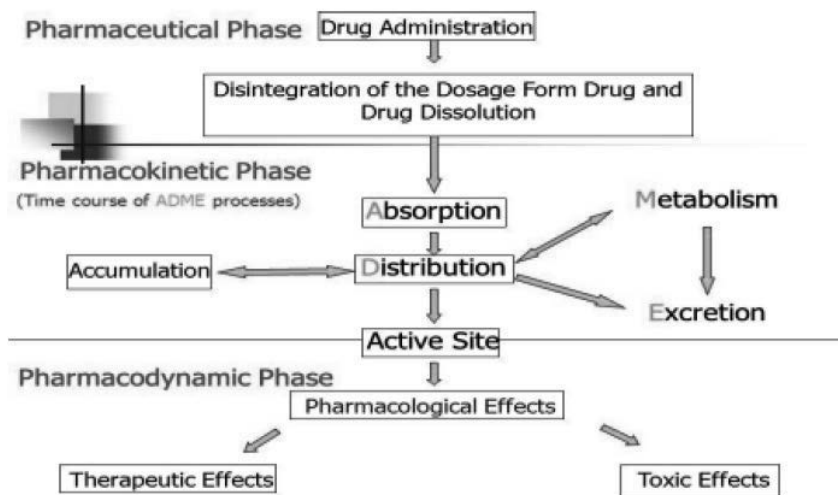
Pharmacotherapy is not a contemporary science. The use of drugs to treat illness is a practice that has been accepted for thousands of years.

Pharmacotherapeutics

In Greek: pharmacon means drug and therapeia means medical treatment]. So, pharmacotherapeutics is all about the study of therapeutic uses and effects of drugs.

Definition

- It Deals with the Use of Drug in Prevention, Treatment & Diagnosis of Disease.
OR
- It is the Treatment of Diseases by means of Drug. It utilizes information on drugs obtained by Pharmacodynamics Studies.
OR
- Pharmacotherapeutics is a Branch of Pharmacology which is defined by Merriam Webster as "The Study of the therapeutic uses & effects of Drugs". Pharmacotherapeutics is the Application of Pharmacological Information together with the Knowledge of Disease for its prevention, mitigation or Cure.
- Pharmacotherapeutics deals with the treatment of diseases through the administration of drugs. It is responsible for ensuring the safe, appropriate and economical use of medicines for direct patient care. It is also known as **Pharmacological treatment, Psychopharmacology, medicinal intervention and Drug therapy.**
- The Major Causes of Failure of pharmacotherapy is simply that the patient has failed to follow the instructions for the use of medicines. Non-Compliance may be due to Forgetfulness.



- Confusion
- Incomplete understanding of instructions

Ways to Improve Patient Compliance

- Patient Counseling
- Unit Dose system
- Sustain Release Products

Scope of Pharmacotherapeutics

Scope mean:

- An area in which something
 - Act or
 - Operates or
 - Has power or control

The scope of pharmacotherapeutics is rapidly expanding and provides the rational basis for the therapeutic use of drugs. There are number of scopes:

1. Pharma-Industries

In the pharmaceutical industry, a pharmacologist Plays a signifi cant role. He may work in several departments of industries as:

Medical Advisor

A pharmacologist can help with a variety of things as a medical advisor, including:

- a. Planning of services
- b. Advice on effective prescribing
- c. Education for general practitioners

Medical Transcription

The process of transcription or converting voice-recorded reports as dictated by physicians and/or other healthcare professionals into text format.

Medico-Marketing

Business of advertising or otherwise promoting the sale of pharmaceuticals or drugs.

Training

A pharmacologist may provide instructions:

- a. To medical representatives
- b. To physicians
- c. Academy for clinical excellence (ACE)
- d. Indian society for clinical research (ICSR)

2. Special Domains

The pharmacologist performs experiments and analyses in order to better understand the effects of pharmaceutical substances and medicines on the human or animal organism.

A pharmacologist may also work in some special domains such as:

- Pharmacovigilance
- Pharmacoeconomics
- Pharmacoepidemiology
- Chronopharmacology

Pharmacovigilance

Pharmacovigilance means “Drug” and vigilare means “To keep watch”.

Definition: According to WHO, the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other possible drug related problems.

The role of Pharmacovigilance can be divided into three main areas:

1. To identify, quantify and document drug related problems.
2. To contribute to reduce the risk of drug-related problems in healthcare systems.
3. To increase knowledge and understanding of factors and mechanisms which are responsible for drug related injuries.

Pharmacoeconomics

It is a branch of health economics which particularly focuses upon the caused and benefits of drug therapy.

Pharmacoepidemiology

Means study of drugs among people.

- **Pharmacon** means drug
- **Epi** means among
- **Demos** mean people
- **Logos** means study

Epidemiology is the study of use and effects of drugs in large number of persons. Epidemiology is the application of epidemiologic reasoning, methods and knowledge to study of uses and effects of drugs in human population.

Chronopharmacology

The study of how the effects of drugs vary with biological timing and endogenous periodicities. It is a method used in pharmacokinetics to describe diurnal (daily) changes in plasma drug concentrations.

Example: H₂-blockers should take in evening or early night when acid secretion is increasing.

3. Research

Pharmacologists research and test medications and chemical compounds for the development of drug therapies, the prevention of drug interactions. They also look at the potential side effects of various drugs. They play an important role in:

- Drug development
- Drug discovery
- Clinical trials

OBJECTIVES

The main objectives of pharmacotherapeutics is to enhance the safety of prescription, maximize the effects of drugs & to minimize side effects

- To ensure the proper use of drugs
- Therapeutic approach to management of disease
- Subjective, Objective, Assessment and Plan (SOAP) of common disease condition
- Patient counseling
- To avoid and reduce adverse drug reactions and their toxicity

- To provide good treatment results
- Helps in explaining the physiological, pharmacological and psychological effects of acute and chronic exposure of individuals to drugs with abuse consequences of sudden withdrawal of such a drug from a drug dependent individuals
- Describes the effective use of non-pharmacological therapeutic interventions in the treatment of specific diseases, condition and Symptoms

Healthcare provider must consider the following points while deciding the therapy for patient:

- The condition for which the patient is to be treated
- The patient's current drugs (including prescribed, over-the-counter medications, and illicit drugs)
- Possible drug interactions that may occur
- Contraindications of drugs
- Patient mental status and ability to comply with directions
- Need for follow up testing (Such as periodic blood tests)
- Patients social history (Homeless status, presence or absence of support system, Access to transportation of other services)
- Pregnancy or Breast feeding status
- The Route of Drug Administrations (Oral, Rectal or Parental)
- ADME of drugs
- Adverse effects of drugs
- Current medical conditions that may effect drug activity (such as Kidney or Liver Disease)

Based on the assessment of the patients, the following pharmacotherapeutics steps are indicated:

- Define the patients problems for which treatment is indicated
- Outline the therapeutic object
- Choose the appropriate treatment based on current practice and Evidence = Based Research
- Verify the suitability of the chosen treatment
- Begin the treatment
- Provide information to the patient and caregivers about the drug, Instructions for use and any precautions
- Carry out ongoing assessment & continue, modify or stop treatment

TYPES OF THERAPY

- Acute Therapy
- Chronic Therapy/Long-term/Maintenance
- Replacement Therapy
- Palliative Therapy
- Supportive Therapy
- Prophylactic Therapy
- Empiric Therapy

Acute Therapy

This type of therapy is indicated with acute, sudden or critical illness. Acute therapy usually needs to begin immediately if the patient is to improve or recover. Treatment is often more intense and may involve multiple drugs and ongoing assessments.

Example: Chemotherapy for the cancer.

OR

Acute therapy is often provided for those who need short-term assistance recovering from surgery. The goal of acute therapy is still to provide the patient with the skills they need to function independently once they leave the hospital.

Example: The administration of vasopressors to maintain blood pressure and cardiac output after open heart surgery.

Chronic Therapy/Long-term/Maintenance

This type of therapy is intended for maintenance and to prevent patients condition from worsening or to control symptoms but not generally expected to bring about cure.

OR

Maintenance therapy does not eradicate problems, the patient may already have but will prevent progression of a disease or condition.

Example: Treatment of chronic illness such as hypertension, use of oral contraceptives for birth control.

Replacement Therapy

This type of therapy serves to replace something that is missing in the body and often critical, such as insulin. Some replacement therapy is needed throughout the patient's life but others, such as hormone replacement therapy, may be used for a period of months or years to relieve symptoms.

It may also be used to treat deficiencies of vitamins and minerals, such as vitamin D replacement therapy and iron-deficiency anemia.

Palliative Therapy

It focuses on providing patients with relief from the symptoms, pain, and stress of a serious illness. The goal is to improve quality of life for both the patient and the family.

Example:

1. Use of high-dose opioid analgesic to relieve pain in the final stages of cancer.
2. Use of anti-emetics such as metoclopramide to relieve nausea and vomiting.
3. Use of benzodiazepines such as diazepam and lorazepam to relieve anxiety.
4. Use of anti-depressants such as fluoxetine to relieve depression.

Supportive Therapy

This type of therapy maintains the integrity of body functions while the patient is recovering from disease or injury.

Example: Provision of fluids and electrolytes to prevent dehydration in a patient with influenza who is vomiting and has diarrhea, administration of fluids, volume expanders, or blood products to a patient who has lost blood during surgery.

Prophylactic Therapy

Prophylactic therapy is drug therapy provided to prevent disease rather than treat or cure existing disease.

Example: Use of pre-operative antibiotic therapy for surgical procedures.

Empiric Therapy

This therapy is administered based on probabilities that a disease exists in the absence of confirming data. Empiric therapy is often given based on symptoms when the patients are in critical condition and a diagnosis has not yet been formulated.

RATIONAL USE OF MEDICINES

Rational use of medicines can be defined as prescribing the right drug, in sufficient dose for the adequate duration and suitable to the clinical requirements of the patients at least cost.