

Drugs and Medicines

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Abstract -

A drug or medicine is any substance (other than food) used to prevent, diagnose, treat, or relieve symptoms of a disease or abnormal condition. They can affect how the brain and the rest of the body work and cause changes in mood, awareness, thoughts, feelings, or behavior. Some types of drugs, such as opioids, may be abused or lead to addiction.

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I. Introduction -

Some drugs are available over-the-counter while others can be purchased only with a doctor's prescription. They can be taken orally, via a skin patch, by injection, or via an inhaler, to name the most common methods.

The pharmaceutical industry, which is concerned with the development and marketing of drugs and medication, is a key component of the health sector, which is the most profitable industry in the U.S. economy at an estimated \$24.4 billion in revenues in 2018.

Difference between Drugs and Medicine -

Drugs and medicine are substances that result in a physiological effect when ingested or otherwise introduced into the body. The physiological effect caused by drugs can be either negative or positive since drugs have different uses and purposes. However, the effects of medicine are often positive and favorable since the main purpose of medicine is treating diseases.

A Drug is any chemical substance which when acts on the living body alters the physiological process and is used for prevention, diagnosis, control, and treatment of disease while a medicine is the formulated form of drug having a definite composition and dosage form which is used for prevention, diagnosis, control, and treatment of disease.

A drug is a chemical substance that takes control of your body or mind depending on its own inherent nature. For example when you take a sleeping pill, it puts you to sleep no matter how much you want to be awake! It rules over your body & mind. You can repeat this exercise many times and you will experience the same each time. However, medicine is the substance that helps restore 'normalcy' to your body & mind. Normalcy is actually nothing but your volitional control over your own body & mind. Hence its action can be seen to be the exact opposite of the drug. Properties of a good medicine are that you will never compulsively require the medicine and there is no threat of discomfort or danger when not taken on time.

Classification of medicines on the basis of their action -

Drug classification by their impact on the mind and body is known as Pharmacology Classification of Drugs Based on Effects. The various categories of this classification are:

1) Depressants, or downers, create feelings of relaxation and tiredness. And while they are useful for mental illness and sleep issues, they are highly misused. This misuse is because they create a high or buzz. Depressants are not only highly misused, but they are also dangerous and can lead to overdose.

Common depressants include: Alcohol, Opiates and Barbiturates

2) Stimulants, or uppers, increase energy, focus, and wakefulness. They also provide a "rush." Short-term use increases productivity; it also produces a pleasure high. But, long-term use of stimulants leads to misuse and addiction.

Stimulants include: Adderall

3) Hallucinogens alter a person's perception of reality. Hallucinogens often lead to auditory and visual hallucinations or "tripping." Although they are less addictive than other drug classifications, their fast-acting effects are more severe.

Various Different Drugs -

● Analgesics:

Analgesics are medications that relieve pain. Unlike medications used for anesthesia during surgery, analgesics don't turn off nerves, change the ability to sense your surroundings or alter consciousness. They are sometimes called painkillers or pain relievers.

There are two major groups of analgesics: anti-inflammatory analgesics and opioids.

- Anti-inflammatory drugs work by reducing inflammation (swelling) at the site of the pain.

- Analgesic opioids (also called narcotics) work by changing the brain's perception of pain. An opioid can be any drug, natural or manmade. Many are similar to morphine, but newer, unrelated opioids have been created in the laboratory, too.

Examples -

Codeine

Fentanyl

Hydrocodone

Meperidine

Methadone

Naloxone

Oxycodone

Side effects -

Heartburn

Indigestion

Nausea

Vomiting

Constipation

Diarrhea

Headaches

Dizziness

Drowsiness

Risks -

Addiction

Patient dependency

● Antipyretic:

Fever is a complex physiologic response triggered by infectious or aseptic stimuli. Elevations in body temperature occur when concentrations of prostaglandin increase within certain areas of the brain. These elevations alter the firing rate of neurons that control thermoregulation in the hypothalamus. Although fever benefits the nonspecific immune response to invading microorganisms, it is also viewed as a source of discomfort and is commonly suppressed with antipyretic medication.

Examples -

Ibuprofen

Naproxen

Ketoprofen

Aspirin

Acetaminophen

Fenoprofen

Oxaprozin

Indomethacin

Sulindac tolmotin

Etodolac

Side effects -

Hoarseness

Swelling

Difficulty breathing

Hives
Itching Rash

Risks -
Overdose

- **Antiseptics:**

An antiseptic is a substance that stops or slows down the growth of microorganisms. They're frequently used in hospitals and other medical settings to reduce the risk of infection during surgery and other procedures. They can be used on wounds to ensure no bacteria is growing.

Examples -
Chlorhexidine
Povidone-iodine
Chloroxylonol
Isopropyl alcohol
Hexachlorophene
Benzalkonium chloride
Hydrogen peroxide

Side effects -
Swelling
Pain
Warmth
Redness
Oozing
Blistering
Severe irritation

Risks -
Consumption is fatal

- **Disinfectants:**

A disinfectant is a chemical substance or compound used to inactivate or destroy microorganisms on inert surfaces. Disinfection does not necessarily kill all microorganisms, especially resistant bacterial spores; it is less effective than sterilization, which is an extreme physical or chemical process that kills all types of life.

Examples -
Alcohol
Chlorine and chlorine compounds
Formaldehyde
Glutaraldehyde
Hydrogen peroxide
Iodophors

Side effects -
Burning in open wounds and cuts
Pungent fumes may lead to dizziness

Risks -
Consumption is fatal

- **Antacids:**

Antacids are medicines that counteract (neutralize) the acid in the stomach to relieve indigestion and heartburn. They come as a liquid or chewable tablet and can be bought from pharmacies and shops without a prescription.

Examples -
Aluminum hydroxide gel
Calcium carbonate (Alka-Seltzer, Tums)

Magnesium hydroxide (Milk of Magnesia)

Gaviscon

Gelusil

Maalox

Mylanta

Roloids

Pepto-Bismol

Side effects -

Diarrhea

Constipation

Flatulence (wind)

Stomach cramps

Sickness

Vomiting

Risks -

Drug interaction

- **Antimalarials:**

Antimalarial drugs are used for the treatment and prevention of malaria infection. Most antimalarial drugs target the erythrocytic stage of malaria infection, which is the phase of infection that causes symptomatic illness.

Examples -

Atovaquone/Proguanil (Malarone)

Chloroquine

Doxycycline

Mefloquine

Primaquine

Tafenoquine (Arakoda™)

Side effects -

Nausea and vomiting

Headache

Dizziness

Fatigue

Malaise (feeling of discomfort)

Muscular pain (Myalgia)

Diarrhea

Cough

Risks -

Drug interaction

Liver dysfunction

- **Anesthetics:**

Anesthetic, also spelled anesthetic, any agent that produces a local or general loss of sensation, including pain. Anesthetics achieve this effect by acting on the brain or peripheral nervous system to suppress responses to sensory stimulation.

Example -

Ketamine

Propofol

Midazolam

Side effects -

Feeling or being sick

Dizziness and feeling faint

Feeling cold or Shivering

Headaches

Itchiness
Bruising and soreness

Risks -
Anaphylaxis
Rash
Urticaria
Bronchospasm
Hypotension

- **Antimicrobials:**
Antimicrobial products kill or slow the spread of microorganisms. Microorganisms include bacteria, viruses, protozoans, and fungi such as mold and mildew.

Examples -
Penicillin
Valacyclovir
Fluconazole
Praziquantel

Side effects -
Nausea
Vomiting
Diarrhea
Abdominal pain
Loss of appetite
Bloating

Risks -
Increased antimicrobial resistance is the cause of:
severe infections
Complications
Longer hospital stays
Increased mortality

- **Anti- fertility drugs:**
Antifertility drugs are chemical substances which suppress the action of hormones that promote pregnancy. These drugs actually reduce the chances of pregnancy and act as protection. Antifertility drugs are made up of derivatives of synthetic progesterone or a combination of derivatives of estrogen and progesterone.

Examples -
Norethindrone
Ethinyl estradiol

Side effects -
Bloating
Headache
Breast tenderness
Upset stomach
Hot flashes
Mood swings

Risks -
Hormonal Imbalance

Harmful effects of drugs and medicines -

Any unwanted or unexpected effects of a medicine are called side effects. They are also sometimes called adverse effects or adverse reactions. Side effects can also occur with interactions with other medicines or food.

Not all side effects are serious. Most are mild, although some medicines have serious side effects.

All types of medicines can have side effects. This includes prescription medicines and over-the-counter medicines that you can buy from a pharmacy, supermarket or other shops. Vitamins and minerals can also have side effects, as can any herbal, complementary, alternative or natural medicine.

Some common side effects are:

- Constipation
- Skin rash or dermatitis
- Diarrhea
- Dizziness
- Drowsiness
- Dry mouth
- Headache
- Insomnia