DRUGS AND MEDICINES

Minor Research Project

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CERTIFICATE

This is to certify that the Minor Research Project entitled "**DRUGS AND MEDICINES**" *describes the original work done by* **Vanshika** *under the supervision of Dr. VIJENDRA SINGH during BSc (NEP) Semester 5–6 of the* **Maa Shakumbhari University, Saharanpur**. *The matter embodied in this Minor* Research Project *has not been submitted in the present form in any University.*

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DRUGS AND MEDICINES

Contents:

- Pharmacology Overview
- Introduction
- History
- What is Drug?
- Meaning Of Addiction
- Drug Dependence
- Type Of Drug
- Common Group Of Drugs
- Party Drugs
- PIEDs (Performance and Image Enhancing Drugs)
- Combination Of Drugs And Alcohols
- How Drugs Addiction Begins?
- Social Diseases (Smoking, Drinking and Use of Drugs)
- Conclusion
- Medicines
- Relation Of Drugs And Medicines
- Classification Of Medicines
- Hazards of Self Medication
- Alternative Systems of Medicines

Drugs

Pharmacology overview:

Pharmacology is the study how a drug affect a biological system and how the body response to the drug. This discipline encompasses the source chemical properties and therapeutic use of drugs.

Pharmacology: Pharmacology has 2 major branches:

- **Pharmacokinetics**, which refers to the absorption distribution, metabolism and excertion of drugs.
- **Pharmacodynamics**, which refers to the molecular biochemical and physiological effect of drugs, including drug mechanism of action.

Father of Pharmacology: Oswald Schmideberg was a German pharmacologist. He is regarded as the father of pharmacology. He put forward many fundamental concepts in pharmacology.

What is the scope of Pharmacology? Study of substances that interact with living system through chemical processes, by binding to regulatory molecules and activating or inhibiting normal body processes. SCOPE :An area in which something -Acts OR- operates OR- has power OR control.

Introduction :

Drugs used in obstetrics have a huge impact on the outcome of both mother and baby. Drug used during first trimester can produce congenital malformation and the period of greatest risk is on the third to eleven weeks of pregnancy.

During second and third trimester drug can affect the growth and functional development of the fetus or they can have toxic effect on fetus Any substances other than food used in the prevention diagnosis all aviation or treatment of a disease is called a drug.

A drug may also be defined as a chemical which taken in some way after the body function. Drug is also known as medicine .Generally, the term drug applied to any stimulating or depressing substance that can be habituating or addictive. Drugs are substance that changes a person's mental or physical state . They can affect the way your understanding and your senses. Drugs are chemicals or substance that changes the way our bodies work. Some are medicines that help people when doctors prescribe them. Many have no medical use or benefits. When taken (usually by swallowing, inhaling, or injecting) abused drugs find their way into the bloodstream. This makes them unpredictable and dangerous especially for young people. The effect of drugs are different for each person and drug.

History:

The word Drug which taken from French word Drogue which means Dry Herb, strongly suggest that earliest drugs were taken out from plant sources. Earliest people used to treat diseases by some un conventional method using plants, animal products and mineral, of them plants were given priority. Some drugs have been used as meditation for most of human history. For instance , the medicinal use of opium is described from the earliest written records Nepenthes pharmakon is mentioned in the 9th century BC in Homer's Odyssey.

Until the mid – nineteenth century nature's pharmaceutical were all that were available to relieve man's pain and suffering. The first synthetic drug chloral hydrate, was discovered in 1869 and introduced as a sedative - hypnotic it is still available today in some countries.

A good medication history should encompasses all country and recently prescribed drug previous adverse drug reaction including hypersensitivity reaction and over the counter medication including herbal or alternative medicines and adherence to therapy.

What is Drug?

Drugs are substances that change a person mental or physical state. They can affect way your brain works, how you feel and behave your understanding and your senses. This makes them unpredictable and dangerous, especially for young people. The effect of drug are different for each person and drug.

Meaning of Addiction:

Addition is the habitual physchological and psyiological dependence on a substance or practice. Which is beyond voluntary control. A person who is habituated to substance or a practice especially a harmful one is called an addict.

Drug dependence:

Drugs or prescribed by physician for the prevention or treatment of disease or for increasing the physical and mental performance and are with drawn as soon as the desired effect is achieved. Repeated use of certain drugs on a periodic or continuous basis make the body dependence. Such drugs are card psychotropic drugs. They act on the brain and alter behavior consciousness and capacity of perception. Hence they are also termed mood altering drugs. Some people start taking drugs without medical advice due one reason or the other and become drugs dependent.

Types of drugs-

Drugs can be grouped together in different ways- by the way they affect the body, how they are used or where they are used. Find out which drugs we are focused on reducing in Australia.

Drugs Categories- Drugs can be categorised by the way in which they affect our bodies.

- **Depressants:** Slow down the function of the central nervous system.
- **Hallucinogens:** Affect your sense and change the way you see, hear, taste, smell or feel things.
- **Stimulants:** Speed of the function of the central nervous system.
  Some drugs affect the body in many ways and can fall into more than one category. For examples, cannabis appears in all 3 categories-

  Depressants: Depressants slow down the message between the brain and the body – don't necessarily make you feel depressed.
  1. The slower messages affect.
  2. Your concentration and coordination.
  3. Your ability to respond to what's happening around you.

  Small doses of depressants can make you feel relaxed, calm, and less inhibited.
  Larger doses can cause sleepiness, vomiting and nausea, unconsciousness and even death.
  Examples –
- Alcohol
- Benzodiazepines (mirror Tranquilliser such as valium)
- Cannabis
- GHB (gamma- hydroxybutyrate)
- Ketamine
- **Opioids (heroin, morphine, codeine)**

Hallucinogens: Hallucinogens change your senses of reality you can have hallucinations. Your senses are distorted and the way you see, hear, taste , smell or feel things is different. For example, you may see or here things that or not really there , you may have unusual thoughts or feelings. Small doses can cause a feeling of floating, numbers, confusion, disorientation or dizziness.Largers doses may cause hallucination, memory loss, distress, anxiety, increased heart rate, paranoniapanic and aggression.

Examples-:

- Cannabis
- Ketamine
- LSD (lysergic acid diethylamide)
- Psilocybin (magic mushrooms)
- PCP (phenyclidine)

Stimulants: Stimulants speed up the messages between the brain and the body. This can cause-

- Your heart to beat faster.
- Your blood pressure to go up.
- Your body temperature to go up leading to heat exhaustion or even heat stroke.
- Reduced appetite
- Agitation
- Sleepiness.

You can feel more awak,alert, confident or energetic.
Larger doses can cause anxiety ,panic, seizures, stomach cramps and paranoia.
Examples-:

- Amphetamines(speed and ice)
- Caffeine
- Cocaine
- Ecstasy (MDMA- methylenedioxymethamphetamine)
- Nicotine (tobacco)

Common groups of Drugs-:

Drugs can also be grouped by how or where they are commonly used. **Analgesics:** Analgesics Or Painkillers- relieve the symptoms. Some people take more than the recommended dose to get high, or to self- harm. They can also be overused by people who have chronic pain.Some are available over the counter such as:

- Aspirin
- Paracetamol
- Ibuprofen

Others require a prescription from a doctor such as :

- Codeine and paracetamol combination products
- Fentanyl
- Morphine
- Oxycodone
- Pethidine

Inhalants: Inhalants are substance that you breathe in through the nose (sniffing) or mouth. They are absorbed into the blood stream very quickly giving the user an immediate high.

There are 4 main types of inhalants:

- **Volatile solvents:** Liquid that turn into a gas at room temperature – for example, a paint thinners and removers, glues, petrol and correction fluid (liquid paper).
- **Aerosol sprays:** For example, spray paint, deodorants And Hairspray, fly spray and vegetable oil spray.
- **Gases:** For example, Nitrous oxide, propane, cigarette lighters , helium.
- **Nitrites:** For example, room dedorisers and leather cleaner.
  Most of these or represents exact for nitrites.

Opioids – Opioids are type of pain killer that can be made from poppy plants (heroin) or produced synthetically (fentanyl) . Also called opiates or narcotics, they are addictive as they can give you a feeling of well being or euphoria.

Examples -

- Codeine
- Heroin
- Methadone
- Ocycodone

Party Drugs:

Party Drugs are a group of stimulants and hallucinogens. They are often used by young people in an attempt to enhance a party, Festival or concert experience. However dozens of Australians Becomes seriously ill or die after using party drugs each year. The most common party drug is ecstasy (MDMA) , but the pills / tablets/ capsules are of variable purity or don't actually contain any MDMA and may a wide range of other substances. You cannot be sure what you are taking and the risk to your health are high.

Performance And Image Enhancing Drugs (PIEDs) –

Performance and image enhancing drugs or substances used by people to change their physical appearance or boost their sporting ability, for examples, weightlifter and athletes.

There are 3 main types of performance and image enhancing drugs :

1. Anabolic steroids: Synthetic hormones that help grow and repairs muscles.
2. Peptides: Stimulate the release of human growth hormone, which is involved in muscles and bone growth.
3. Hormones: Both natural and artificial – For example, growth hormones, selective androgen receptor modules, insulin like growth factors, mechano growth factors**.**

Why do people use PIEDs? Formost people who use PIEDs body image is the main motivation for use. Due to desirable effects on physique and improved and confidence people who use these drugs can develop a psychological dependence. However for professional athletes it is the advantages in physical strength and size that is the main reason for use.

The expected benefits of using these substances may include:

- Reducing water retention
- increasing the size and definition of muscles.
- reducing body fat
- Increasing strength and and range
- helping the body recover quicker from injury.

Harms: There is no safe level of drug use. Use of any drug always carries some risk even medication can produce unwanted side effects. It is important to be careful when taking any type of drug. The harms associated with PIEDs, depend on the type of drug being used different categories of drug have different harms though there are a few shared harms.

If PIEDs are injected, there is an increased risk of:

- Tetanus
- Infection
- Vein or skin damage

If sharing needles with other people, there is an increased risk of:

- Hepatitis B
- Hepatitis C
- HIV and AIDS.

People who use steroids should be aware of a number of negative physical, psychological and behavioural side effects including:

- Acne
- Etc.

As a number of synthetic peptide hormones our experimental or not yet approved for human use it is difficult to pinpoint specific harms they may cause.

It is important to note that many of these drugs do have legitimate, medical use when they are prescribed and supervised by a medical professional.

Mixing PIEDs and Other Drugs-:

Anabolic steriods + stimulants can impair athletic performance and increase the risk of heart palpitation and high blood pressure.Use of more than one drug or type of drug consumed at the same time is called Polydrug use.More on Poly drug use 'Polydrug use' is it term for the use of more than one drug or type of drug at the same time or one after another. Polydrug use can involve both illicit drugs and legal substances such as alcohol and medications.

Combination of Drugs and Alcohols: Some addicts uses mixture of drugs to have immediate 'kid' or charge. Simultaneous use of drug and alcohol may produce dangerous effect including death. When barbiturates and alcohol are taken together, each doubles the effect of the other. A mixture of cocaine and heroin called speed ball, gives spontaneous kick of cocaine and prolonged pleasure of heroin.

Combination	**Effect**
Alcohol+Barbiturates	Markedly increased depressants effect
Alcohol+Antihistamines	Marked Drowsiness
Alcohol+Valium	Dramatically increased sedative effect
Alcohol+Marijuana or Hashish	Decreased coordination increased reaction time impared judgement
Alcohol+Aspirin	Increased change of damage to gastric mucosa

How Drug Addiction begins?

There are many factors that leads people to drug addiction.

1. **Curiosity:** Frequent reference to drugs by public media create curiosity for having a personal experience of the drugs.
2. **Friend's pressure:** Frequent appreciation of drug expirences of the drugs.
3. **Frustration and Depression:** Some people start taking drugs to get relief from frustration and depression.
4. **Desire for more work:** Students some times takes drugs to keep awake the whole night to prepare for examination. It is not desirable as it may cause mental breakdown.
5. **Looking for a different world:** A wrong motion that the drugs open up a new world tempts some young octers to start taking drugs.
6. **Relief from pain:** A prolonged of pain relieving drug with physician advise at time lead to addiction.
7. **Family history:** Children may take to drugs by seeing their elders in the family.
8. **Excitement and adventure:** The young take to drugs satisfy their instinct for excitement and adventure.

SOCIAL DISEASES(Alcohol,Drinking and use of Drugs):

Smoking and drinking and use of drugs frequently or regularly or social disease.They adversely affect the health of the addicts and the society. Young people take to these habits for fun show off or curiosity as an adventure or feeling of freedom or as a gesture of defiance against the elders who themselves indulge in these activities but check the youngsters. Others factors that make people take to these vices are inability to face problems of life indifference shown by members of the family, and encouragement or pressure by friends. Temporary escape from the life problem and mental relaxation felt on taking the drugs in the beginning increase person interest in them. Soon they become habitual and find in different to leave. The daily dose to get the desired effect increase with time. As in other countries, the menace of drug addiction is spreading in India also. A large number of our young men and women have taken in toxicants. About 87.6 percent drug addicts are between the age of 14 to 25 years.

Tobacco-:

Source: It is a native of South Africa, where the Red Indian first he started smoking. Now the tobacco plant has spread the world over. It has large quote to lanceloate leaves and terminal clusters of tubular, white or pink flower.

Modes of use- Tobacco is used for smoking, chewing and snuffing. It's main stimulating component is poisonous volatile alkoid nicotine, which cause addiction. Nicotine synthesis occurs in the roots of the plants but it is stored the leaves. The leaves contain 2 to 8 percent nicotine. Inhaling tobacco smoke from cigar, cigarette, biddies, pipes and hubble - bubble is called smoking. Cigar is a roll of tobacco leaf. Cigarette is cut tobacco wrapped in paper. Bidi is tobacco wrapped. In a piece of leaf. Tobacco smoke is drawn directly from pipe and through water is hubble - bubble. Smoking may give some temporary relief to the strained nerves but in the long run it proves a dangerous health hazard. The quantity of nicotine contained in one cigar may prove fatal if injected intravenously into a person. When smoked only 10% of the smoke is inhaled. Hence, no immediate ill effect is observed. Smokers may develop of physiological craving for nicotine and then they cannot give up smoking.

Effects of Nicotine: Nicotine is low concentration.

- Stimulates conduction of nerve impulses.
- Relax the muscles.
- Relax adrenaline, increasing heartbeat rate and pressure.
- Increased blood pressure due to smoking chance the risk of heart disease.
- Retards foetal growth in excepting mothers.
- Cause tobacco addiction. High concentration of nicotine paralysis nerves cell.

Other harmful component of tobacco smoke: Besides the poisonous nicotine, the tobacco smoke contains carbon monoxide polycyclic aromatic hydrocarbon and tar.

Other Effects-

1. Smoking effects Economy: A smoker not only waste money, but also runs risk of burns and fires.
2. Smoking mars Personality: Teeth may become stained. Lips may get discoloured and breath becomes foul. A person with a cigarette hanging from the mouth look odd.
3. Smoking is Annoying to other: Cigarette smoke is quite annoying to non smokers. If may prove even more harmful to them. A smoker should avoid smoking. when in the company of non- smokers. Smokers make the person near by person passive smokers through inhaling smoke released by him.

Alcohol-:

Source: Ethyl alcohol, or ethanol, flammable, colourless liquid having a penetrating odour and burning taste. It is one of the products of the distillation fermented grains fruit juice and starches with the help of yeast enzyme. It is the principal constituent and in toxicating principle of wines.

Mode of use: Alcohol is taken in low concentration, as the beer, today and wine and in relatively high concentration as aarak, Brandy ,whiskey ,rum, gin, vodka etc.

Addition: Addition to alcohol is called alcoholism. Alcoholics are found in all society section of society. Alcohol cause in toxication and thus act as a poison. They drinkers begins with small doses, but may of them soon start consuming large doses and become addicts. By the time they realise that drinking in adversely affecting them it is too late to give it up.

Why people take to Drinking?

The drinkers offer one or more of the following reason for starting drinking.

- Social pressure.
- Desire for excitement.
- Feeling of independence.
- Liking of taste.
- desire to escape from such realities of life as disappointment and failures .
- desire to offset the hard ships and monotony of daily life.

What happens when alcohol get in Stomach :

Alcohol is quickly absorbed in the stomach and upper part of small intestine and reach all the tissue in minutes. It's oxidation starts at once and a large amount of heat in produced. Since heat is not needed in the body, it is taken up by the blood and carried to the skin for dissipation. Since the receptor of heat are located in the skin, the rush of blood to the skin give a false impression of warmth in the body. The blood supply of internal organs is greatly reduced resulting in fall of temperature in them. Energy released by alcohol is not used in any life process. Rather the energy derived from food is used up in ridding the body of excess heat.

Is Alcohol a Stimulant?

Many people take alcohol for stimulation, actually, alcohol is depressant . A substances which dulls the sense. It reduces the efficiency of every tissue the body, any feeling of lift a person may claim to feel is a mistaken impression or an attempt to justify the act in his own mind.

Conclusion:

Drug use and addiction cause a lot of disease and disability in the world. Recent advance in neuroscience may help improve policies to reduce the harm that the use of tobacco alcohol and other psychoactive drugs imposed on society.

Medicines

When we fall ill we take some tablets, pills injection, or apply some ointments to get well. All these are collectively known as medicine. Sometime we may use parts of plants or some preparation made from herbs, minerals, animals etc. All these substances used for the treatment or prevention of disease, can also be called medicine. Medicines contain a single chemical or a number of chemicals in different amount to have the desired effect. The mode of action of the chemicals of medicine is quite valid carried and complicated. In many a case mode of action may not be fully known to us, but we continue to use them as they are useful to us. Early man used several plants or parts of plant to cure disease without knowing of the chemical components, responsible for it. For example, bark of Willow tree was used for relieving pain. Later, it was found that its bark contained 2- Hydroxy benzoic, acid, which is closely related to acetyl salicylic acid (Also known as aspirin). In most of the cases nature led to the discovery of modern medicine. Thousands of chemists all over the world are constantly searching for better, efficient, cheaper, and safer medicine. As mentioned earlier the term drugs and medicine are used interchangeably, but there is a difference between the two. Let us try to understand the difference between drugs and medicine. The term drug is often used for preparation or formulation whose chemical components and their quantities are not known fully. These may be extracts of certain plants, herbs, animals parts or main bhi minerals.
The term medicine is used when chemical composition and the quantities of various chemical components are known. Further, the effects of the chemical compounds present in a medicine and their side effects have been properly and extensively studied. The medicine are approved by the relevant governmental authorities like drug controller of India. The term drug is also used for substances, which are habit forming and are often abused, for example, narcotics like cocaine, morphine, heroine marijuana etc.

Father of Medicine-: Hippocrates:

Hippocrates is considered 2 be the father of modern medicine because in his books, which are more than 70. He described in a scientific manner, many diseases and their treatment after detailed observation. He lived of drug 2400 years age.

Relation of Drug and Medicine:

- The purpose of a medicine is to prevent, alleviate or cure a symptom, aliment or disease state ; In other words, the purpose of a medicine is benign, it is product produce and regulated to impart a positive medical effect on a patient.
- A medicine also tends to have many different components. in addition to the active ingredient medicine also contain other substances called excipients, that assist in the formation and efficacy of that medicine for the patient.

Classification of Medicine:

You may be familiar with some of the common medicine used for relieving pain reducing fever or for treating common cold etc. The number of medicine is very large therefore medicine or classified according to their action or use . Provides a list of some important classes of medicine. The term like analgesics, antibiotics, antiseptic etc. are common household Worlds. Let us try to understand the meaning of this classification in a little more detail.

Some important Classes of Medicines and their action:

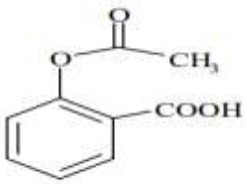
S. No	Class	Action or usage
1	Antipyretics	Reduce body temperature.
2	Analgesics	Reduce pain.
3	Antimalarials	Used for treatment of malaria.
4	Germicides	Kill germs.
5	Antiseptic	Kill germs.
6	Disinfectant	Kill germs.
7	Antacids	Reduced acidity in stomach.
8	Anaesthetics	Loss of sensation.
9	Antimicrobials	Kill microorganism.
10	Tranquilizers and hypnotics	Reduce anixety and bring calmness
11	Birth control medicines	Birth control.

1. **Antipyretics:** Antipyretics are the substances which are reduced body temperature to control Fever . The word antipyretic is derived from pyro which means fire (means

hot) anti means against. Thus antipyretic means it counteract heat (high body temperature.) Aspirin, paracetamol and phenactin in are commonly used antipyretics. You get them in the market with a different trade names like crocin, anacin, disprin, etc.

Examples-:

- Aspirin
- Paracetamol
- Phenacetin



Aspirin

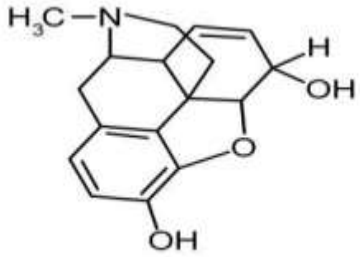
Paracetamol

Phenacetin

Aspirin is the most popular antipyretic in use. it gets hydrolysed in stomach and salicylic acid is released. overdose and using get over a long time may cause side effect. It may cause bleeding in the stomach wall and even ulcers. Therefore, overdose and prolonged use should be avoided. However, calcium and sodium salt of aspirin are more soluble in water and are less harmful than aspirin.

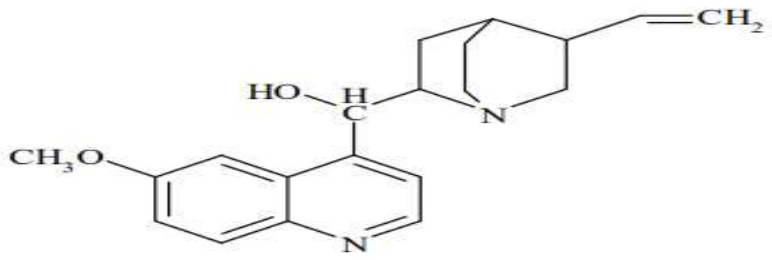
2. **Analgesics:** Analgesics are the substances ,that reduce pain which may be due to swelling of tissue, injury, inflammation or some other disorders. Analgesics are of two types, namely narcotic and non narcotic

Narcotic analgesics are the ones which induce sleep and thus help to reduce the feeling of pain alkaloids present in opium, viz, morphine, Codeine, etc. are common examples of narcotics. In higher doses these may cause unconsciousness. These are habit forming and cause addiction. Due to addictions a person wants to have it regularly and in larger amount. Such a person feels upset an uncomfortable if he does not get it. Narcotic analgesics do not induce sleep and or not habit forming. A common example of this type of narcotics is morphine.



Morphine

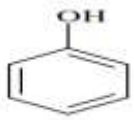
3. **Antimalarials:** Antimalarials Medicines are used to treat malaria. Quinine and chloroquine are widely used anti malaria. Quinine is one of the earliest drugs, which was first obtained from the bark of a plant and later on synthetized in laboratories.
   Example - Quinine



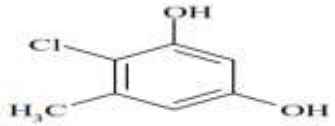
Quinine

4. **Germicides, Disinfectant and Antiseptic:** Germicides are the chemicals, which prevent growth of germs (microorganism.) Germicides are classifieds as antiseptic and disinfectant. Both kill microorganism but the difference lies in the way we use them.
   Antiseptics microorganism and or safe to be used on living being (tissue) . Antiseptics are used on wound, cuts, or skin abrasions. These are used to dress wounds, etc. For example, idoform (CHI3), tincture of iodine, ethyl alcohol, a 0.2 percent aqueous solution of phenol and boric acid (H3BO3) are common antiseptics.
   Some dyes have the ability to kill microorganism. These dyes were the earliest compounds to be used as antiseptic. examples are acriflavine (a yellow coloured dye), mercurochrome (a red coloured dye) , methylene blue (a blue coloured dye). These dyes are still in use as antiseptic.
   Iodine is a powerful antiseptic. It used as tincture of iodine. Tincture of iodine is 2 to 3 percent solution of iodine dissolved in ethyl alcohol. Iodoform is a yellow coloured solid, which is used as an antiseptic.
   Chlorine is a powerful oxidising agent. It is used for disinfecting water . A concentration of 0.2 to 0.4 ppm is enough to kill microorganism present in water.

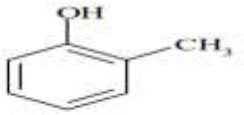
Is phenol antiseptic or disinfectant: It is interesting to note that 0.2% aqueous solution of phenol is used as antiseptic by making. It is safe to be used on living tissues in low concentration (less than 0.2%) if concentration of phenol is high then it can damage tissue. Therefore, at higher concentration (1% or more)phenol is used as disinfectant.



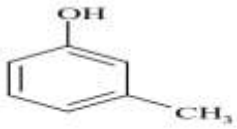
Phenol



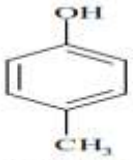
Chloro-xylenol



o-Cresol



m-Cresol



p-Cresol

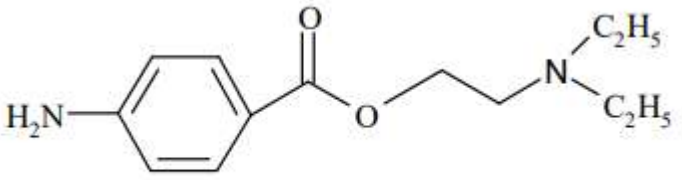
5. **Antacids:** Antacids are the medicine which neutralize the excess acid present in the stomach.

   Stomach juice contain hydrochloric acid .This acid helps the process of digestion of food. Due to illness or anxiety or some other reasons more acid is produced in the stomach. the stomach juice become more acidic than necessary. This cause problems bleeding in the lining of stomach or even ulcers.Some medicine are used to neutralise the excess acid and correct the pH of the stomach fluid.

   For example, sodium bicarbonate as a suspension of magnesium hydroxide used to neutralize excess of acid present in the stomach. Milk of magnesia contains magnesium hydroxide. ENO fruit salt contains sodium bicarbonate which help to neutralise excess acidity in the stomach juice. Medicine like digene, gelusil, used as an antacid contain magnesium hydroxide.

6. **Anaesthetics**: Anaesthetics are substances, which cause loss of sensation over a small area (local) or loss of sensation of the whole body. There are two types of anaesthetics namely, local and general.

   - **Local Anaesthetics**: Local anaesthetics produce numbness or loss of sensation of pain, over a small area. Cocaine, procaine and xylocaine are used as local anaesthetic. These are useful for minor operations.



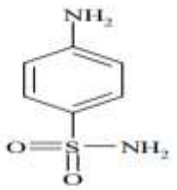
Procaine

   - **General Anaesthetics:** General anaesthetics cause unconsciousness and hence loss sensation of pain in the whole body. General anaesthetics are used for carrying out major surgical operations. Some of the general anaesthetics are gases like nitrous oxide (also known as laughing gas). Some are low boiling ethers like diethyl

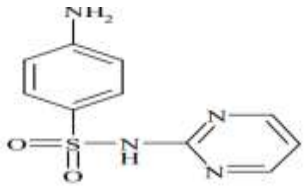
ether, divinyl ether, etc. These are given to the patient by inhalation. On inhaling, these are absorbed through the lungs and make the person unconscious. Anaesthetics have made surgical operations less risky and less painful. Some anaesthetics are given orally (by mouth), or by injections. Morphine and pathedine (these are the alkaloids obtained from opium) are given as injections or through oral route.

7. **Antimicrobials:** Many diseases are caused due to infection in the body by certain microorganisms (bacteria, fungus or viruses). Some examples of diseases caused by microbes are dysentry, pneumonia, typhoid, urinary tract infection, etc. Antimicrobials are the chemicals, which are used to kill microorganisms (which has infected the body) without causing much damage to the body of the patient. Thus an antimicrobial is a chemical, which is capable of curing diseases caused by various microbes. An ideal antimicrobial should kill disease-causing microbe and should not have any harmful effect on the patient. In fact there may not be any such antimicrobial which is totally safe and without any side effect. The most common antimicrobials available are the sulhpa drugs and antibiotics.

Sulpha Drugs: Sulpha drugs are a group of drugs, derived from sulphanilamide. All the sulpha drugs are synthesized in laboratories. Some of them have been very useful in treaing diseases caused by a variety of bacteria. Some of the important sulpha drugs are sulphacetamide, sulphadiazine and sulphaguanidine, etc.



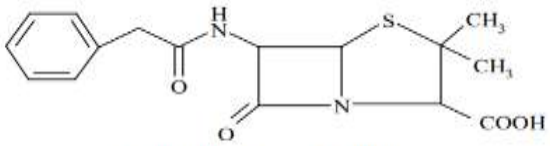
Sulphanilamide



Sulphadiazine

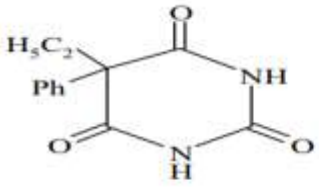
Antibiotics: Antibiotics are the metabolic products produced by some microorganisms (mould or fungi). They inhibit growth and even kill disease causing microorganisms (like bacteria, fungi, etc) by inhibiting their life processes. Therefore they are referred to as antibiotics (anti means against and biotic means life).

Penicillin was the first antibiotic to be discovered. Alexander Fleming isolated penicillin in 1929 from a mould Pencillium notatum. Penicillin has been used for the treating diseases caused by several bacteria. It has been effectively used for treatment of pneumonia, bronchitis, sore throat, abscesses, etc.

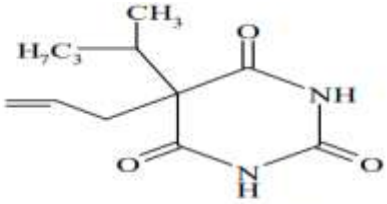


Penicillin G (benzyl penicillin)

8. **Tranquilizers and Hypnotics:** Tranquilizers and hypnotics are used to reduce anxiety, and they also make a person calm. Sleeping pills are made up of these compounds. Most of them are habit-forming. Their indiscriminate and over use should be avoided. Otherwise it may lead to addiction and many other complications,

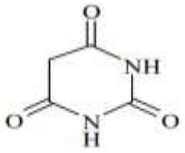


Luminal

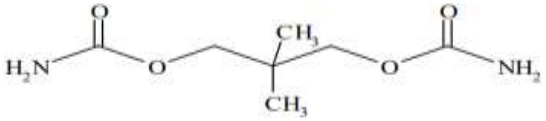


Seconal

Luminal, seconal and equanil are the most commonly used tranquilizers. Barbituric acid and some other compounds related to barbituric acid are used in making sleeping pills.

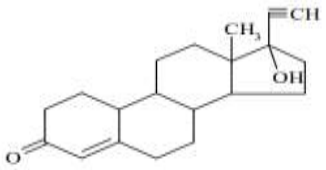


Barbituric acid

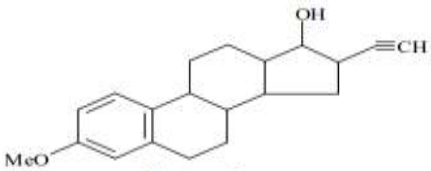


Equanil

9. **Fertility Control Medicines:** It is a concern of everyone to control human population. Medicines are available which help prevent pregnancy. The medicines, which help prevent pregnancy, are known as contraceptives. These are generally available in the form of tablets and are to be taken regularly by females. Chemicals like norethindrone and mestranol are used as contraceptives (birth control pills). Chemically these are similar to female sex hormones.



Norethindrone



Mestranol

The birth control pills may have some side effects in some cases. Therefore, the birth control pills should be used under the guidance of some expert.

Hazards of Self Medication-:

When medicines are taken by a patient without the advice of a qualified doctor, it is called self-mediation. Self-medication is very harmful and a dangerous practice. One should never try

self medication. Some of the harmful effects are: 1. A medicine, which has worked well for some one, may not be good for you and can even cause some serious harm. 2. You may take a medicine in quantity more than necessary. It may be harmful for you. 3. You may take quantity less than necessary. The disease-causing microorganisms may gain resistance to the medicine and the medicine may become ineffective. You should avoid self-medication. Without advice of a doctor avoid use of common medicines over prolong periods. Improper use of even most common medicines, which are readily available without a prescription of a doctor, can have harmful effect.

Alternative Systems of Medicines-:

Allopathic system of medicine mostly make use of chemicals as medicines. It takes several years of testing and trials on animals and humans, before an allopathic medicine is made available in the market. It's effects, side-effects, efficiency, fixing recommended dose, etc. are extensively studied on scientific lines before it is sold in a market. Governments all over the world create several laws, rules and regulations regarding production, quality control, sale, etc. in the interest of public safety. The allopathic system is popularly known as the western system or the English system of medicine. In addition to the allopathic system of medicine there are a large number of other systems of medicine which are used in different parts of the world. Some of them are Ayurvedic, Unani, Homeopathic, Chinese, Tibetan, conventional, tribal, traditional, etc. Some of these systems are more popular in a particular part of the world. Some are localised to a small area or used by a small group of people. In some cases there may not be any written record about the system of treatment and the knowledge is passed on by word of mouth from generation to generation.

Refrences

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2. **(15 J Balamurugan, J. Adv. Res. Humani. Social Sci. 2018; 5(4)**