* Adverse Drug Reaction
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* Objectives
* Explain Pharmacovigilance & various types of adverse drug reactions.
* List some common adverse effects & toxicities with examples.
* Discuss drug dependence & its public health importance.
* Describe principles of toxicology & treatment of poisoning in general.
* Describe Idiosyncratic reactions.
* Pharmacovigilance
* Science of collecting, monitoring, researching, assessing and evaluating information from health care providers and patients on adverse effects of medications
* Adverse drug reaction (ADR) (WHO)
* Response to a drug that is noxious & unintended
* Occurs at doses normally used in man
* For prophylaxis, diagnosis or therapy of disease or for modification of physiological functions
* Should require an intervention
* Warning, Dose adjustment, Stoppage of therapy, Intervention for treatment of ADRs
* Side Effects
* Undesirable effects which may accompany beneficial effects of drug
* Not so harmful as to stop drug
* e.g.
* Dryness of mouth with atropine
* Tachycardia with ephedrine
* Toxicity
* Exaggeration of desired therapeutic effect at higher doses
* Dose related
* Coma due to barbiturates
* Delirium, hyperpyrexia in atropine overdose
* Adverse drug reaction: Classification
* Types
* Type A: Augmented
* Type B: Bizarre
* Type C: Chronic
* Type D: Delayed
* Type E: End of dose
* Type F: Failure of therapy
* Type A: Augmented
* Dose related, Predictable & expected
* Less mortality, High frequency
* Incidence more in elderly, infants, renal & hepatic dysfunction
* Gastritis with NSAIDs
* Tachyarrhythmias with adrenaline
* Type B: Bizarre
* Not expected from known pharmacological action of drug in usual doses
* Unpredictable, Based on patient rather than drug
* Occur on 1st exposure, High mortality, Less frequency
* Hemolysis in G-6-PD deficient individuals: Primaquine, Dapsone
* Prolonged apnea with SCh
* Type C: Chronic
* Dose & time related
* Uncommon
* Related to cumulative dose
* Drug given for prolonged period of time
* e.g.
* SLE with Hydralazine
* HPA suppression with Corticosteroids
* Type D: Delayed
* Time related
* Uncommon
* Apparent sometimes after stoppage of drug
* e.g.
* Vaginal adenocarcinoma with DES
* Tardive dyskinesia with CPZ
* Type E: End of Dose
* Uncommon
* Occur after withdrawal of therapy
* e.g.
* Acute adrenal insufficiency on stoppage of corticosteroids
* Type F: Failure of therapy
* Common
* Dose related
* Often caused by drug interactions
* e.g.
* Oral contraceptive failure with Rifampicin
* Drug Dependence
* Drug dependence is a state in which use of drugs for personal satisfaction is accorded a higher priority than other basic needs

**1. Psychological dependence**

* When individual believes that optimal state of wellbeing is achieved only through actions of drug
* May start as liking for drug effects & may progress to compulsive drug use in some individuals
* E.g: opioids, cocaine

**2. Physical dependence**

* An altered physiological state
* Produced by repeated administration of a drug
* Need for presence of drug to maintain physiological equilibrium
* Discontinuation of drug results in a characteristic withdrawal (abstinence) syndrome
* E.g : Alcohol

**3. Drug abuse**

* Refers to use of a drug by self medication
* Not approved by medical and social patterns
* Coccaine

**4.Drug addiction**

* Pattern of compulsive drug use characterized by overwhelming involvement with the use of a drug
* E.g. Amphetamines, cocaine, cannabis,

Toxicology

* Definitions
* Toxicology
* Science deals with poison with reference to
* Source, properties, mode of action
* Symptoms, lethal dose, treatment
* Poison
* Substance which when administered, inhaled/ ingested, capable of acting deleteriously on human body
* Initial management of toxicity
* Airway
* Breathing
* Circulation
* History
* Physical Examination
* Vital signs
* Eyes
* Mouth
* Skin
* Abdomen
* Nervous system
* Initial management of toxicity
* Laboratory reports
* Arterial blood gases
* Electrolytes
* Renal function test
* Echocardiogram
* Decontamination
* Skin
* Gastrointestinal tract
* Emesis
* Gastric lavage
* Activated charcoal
* Specific Antidote
* Idiosyncratic Reactions
* Genetically determined abnormal response of a drug
* Unique feature of individual, not found in majority of subjects.
* Eg.
* Barbiturates causes excitement and mental confusion in some subjects.