Toxicity studies

PHL-358-PHARMACOLOGY AND THERAPEUTICS-I

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DEFINITION:

It is the study of adverse effects of chemical and physical agents and the degree to which a substance can harm human or animals. Toxicity studies can be of, and chronic toxicity: Acute toxicity: it involves harmful effects in an organism through a single or short term exposure. sub-chronic toxicity: it is the ability of a toxic substance to cause effects for more than one year but less than the life time of exposed organism. chronic toxicity: it is the ability of the substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated and continuous exposure.
PRINCIPLE OF TOXICITY STUDIES: Standard operating procedures (SOP’s) should be thoroughly followed for these studies. It should be performed by well trained and qualified staff. These should comply with norms of good laboratory practices. The test substances and systems should be properly characterized and standardized.
TYPES OF TOXICITY STUDIES:

• Acute toxicity

• Sub chronic toxicity

• Chronic toxicity
ACUTE TOXICITY STUDIES: The adverse effects occurring within a short time of (oral) administration of a single dose of substance or multiple dose given within 24 hours. Acute toxicity tests: animal species Sex Number of animals Route of administration Dose levels Frequency of administration Observation
SUBCHRONIC TOXICITY STUDIES: These are designed to examine the adverse effects resulting from repeated exposure over a portion of average lifespan of an experimental animal. Acute non toxic compound may be toxic after prolonged exposure event at low doses, due to accumulation, changes in enzyme levels, and disruption of physiologic and biochemical homeostasis.
CHRONIC TOXICITY STUDIES: It is the ability of the substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated and continuous exposure. The result of chronic toxicity study in animals should suggest signs and symptoms of adverse reactions to look for in man.