PHARMACEUTICS-I (BP103T)

UNIT: 4 (Suppositories, Pharmaceutical incompatibilities)

CLASS: 5

TOPIC: Pharmaceutical incompatibility

Chemical Incompatibility Reaction between two or more substances which lead to change in chemical properties of pharmaceutical dosage form. Chemical incompatibility may be a result of chemical interactions between the ingredients of a prescription and a toxic or inactive product may be formed. While dispensing such prescriptions, the precautions should be taken either to prevent the formation of harmful product or to correct them and the prescriber must be informed in this regard. Chemical incompatibilities often occur due to oxidation- reduction, acid base hydrolysis or combination reactions. These reactions may be noticed by precipitation, effervescence, decomposition, colour change or by explosion.

Chemical Incompatibilities are of two types

1. Tolerated- in this, chemical interaction can be minimized by changing the order of mixing or mixing the solutions in dilute forms but no alteration is made in the formulation.

2. Adjusted- in this, chemical interaction can be prevented by addition or substitution of one of the reacting ingredients of a prescription with another of equal therapeutic value.

• Eg.- caffeine citrate can be substituted with caffeine in sodium salicylate and caffeine citrate mixture. The chemical incompatibility may be i. Intentional - when the prescriber knowingly prescribes the incompatible drug ii. Un-intentional – when the prescriber prescribes the drugs without knowing that there is incompatibility between the prescribed drugs. Precipitate Yielding Interactions Principle of incompatibility

• Generally, it is observed that reaction between strong solutions proceeds at a faster rate and precipitates formed are thick which do not diffuse readily.

• The light diffusible precipitates are formed when dilute solutions of reacting substances are mixed hence, the reacting substances should be diluted to the maximum extent before mixing them.

• The precipitates so formed may be diffusible or indiffusible.

• The method A & B is followed in dispensing the prescription yielding diffusible and indiffusible precipitated respectively.

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Method A

• The method is followed when diffusible precipitates are formed in very small quantity.

• Divide the vehicle in to 2 equal portions.

• Dissolve one of the reacting substances in one of the portions and the other in the other portion.

• Mix the two portions by slowly adding one portion to the other by rapid stirring.

Method B

• The method is followed when indiffusible precipitates are formed in large quantity.

• Divide the vehicle in to 2 equal portions.

• Dissolve one of the reacting substances in one portion.

• Weigh a suitable quantity of compound tragacanth powder (2gm per 100 ml of finished product) and transfer in a mortar and use part of second portion of vehicle to produce a smooth mucilage.

• Then add other reacting substances.

• Mix the two portions by slowly adding one portion to the other with rapid stirring. A secondary label "Shake the bottle before use" should be fixed on the container whenever method A & B is followed in dispensing the prescription. Examples of chemical incompatibilities and methods of their correction.

2 MARKS QUESTIONS

1. Define chemical incompatibility.
2. What are the types of chemical incompatibilities.

5 MARKS QUESTIONS

1. What is chemical incompatibility? Mention the types and the correction methods.