

Brand and Generic Drugs

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Educational Objectives

- Pharmacokinetic Processes
 - Absorption
 - Distribution
 - Metabolism
 - Excretion

- Brand and Generic Drugs
 - Similarities
 - Active ingredient(s) and amount
 - Differences
 - Inactive ingredients, price
 - possibly absorption pharmacokinetics



Absorption

- The process of crossing biological barriers to enter the bloodstream


- Drugs must be in solution to be absorbed
 - oral tablet versus oral liquid

- Drugs must have access to the bloodstream
 - Topical preparation versus inhalation



Absorption


- Speed of dissolution
 - Solution
 - Suppository
 - Capsule
 - Tablet
 - Topical



Absorption


Routes of Administration

- Injectable fast
 - Intravenous, intramuscular, subcutaneous
- Inhalation
- Sublingual (under the tongue)
- Oral
 - Liquid, capsules, tablets
- Rectal
- Topical slow




Absorption

- Sustained Release Preparations
- Slower absorption
 - once or twice daily dosing
- Increased compliance
 - Compliance: patients take medicine as directed




Distribution

- Drug in the bloodstream moves to other parts of the body
- High blood levels quickly decrease as drug moves from the bloodstream to the rest of the body, including its site of action




Metabolism

- Process of drugs changing chemical structure
- Usually associated with the liver
 - Liver enzymes: cytochrome P450
 - Basis for many drug-drug interactions
 - Some drugs inhibit metabolism of other drugs
 - Some drugs induce metabolism
 - Grapefruit juice inhibits metabolism of certain drugs



Metabolism

- Prodrugs
 - Administered medicine is inactive
 - Liver changes it to an active drug
- Inactive Metabolites
 - Liver inactivates administered drug
- Active Metabolites
 - Liver changes drug to another active drug



Excretion

- Process by which drugs leave the body
- Usually associated with the kidneys
- Half-Life
 - time it takes for half of the drug in the body to be excreted



Brand and Generic Drugs

- The company discovering and developing a new drug receives a PATENT
- A patent gives the company a period of time to exclusively produce the drug
 - preclinical (animal) testing
 - clinical (human) testing
 - Food and Drug Administration
 - marketing and \$\$\$




Brand and Generic Drugs

- The brand (or proprietary) name of the drug receives a trademark, which protects its long term use.
- When a patent expires, others may produce and market the drug
 - generic manufacturers




Brand and Generic Drugs

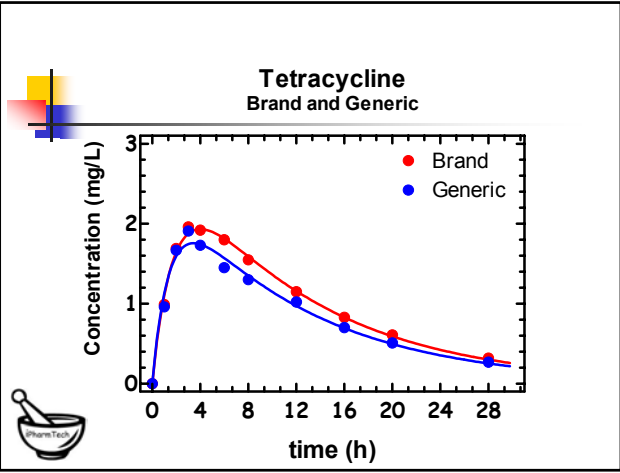
- SAME active ingredient(s)
- SAME amounts
- DIFFERENT inactive ingredients
 - colors
 - tablet or capsule materials



Brand and Generic Drugs

- Pharmacokinetics
 - Bioavailability
 - Same amount of drug enters the body
 - Do brand and generics have the same absorption rate?
- FDA Ratings based on Bioequivalence
 - A same absorption rate
 - AB similar absorption rate
 - B might be similar
 - C different absorption rates





Prescriptions

- Physician permits generic substitution
- Patient agrees to generic substitution
- Help patients feel comfortable with meds
 - Generics meet same standards for purity
 - Generics cost less
 - Generics are OK!



Review

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So, What ??

- CPhTs have direct patient contact
- Help patients understand their meds!
 - keep patients out of trouble
 - provide excellent pharmaceutical care
 - patients will return to your pharmacy





Questions ?

- Website
 - <http://coursesites.blackboard.com>
- E-mail
 - questions@iPharmTech.com
- Just Ask !!