CLINICALLY IMPORTANT DRUG INTERACTIONS
AND HOW TO AVOID THEM

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Drug Interactions

I. What is a drug interaction?
- a drug interaction is the action of an administered drug on the effectiveness and/or toxicity of another drug administered earlier, simultaneously, or later.

II. FDA Classification (Risk rating)
A. No known interaction
B. No action needed
C. Monitor therapy
D. Consider therapy modification
E. Avoid combination

III. Mechanisms of Drug Interactions
A. Effects due to similar pharmacologic activity
   1. CNS depressants increase opioid-induced respiratory depression
   2. Benzodiazepines increase opioid-induced respiratory depression
   3. NSAIDs enhance renal toxicity when used together
   4. CNS stimulants increase hemorrhagic stroke
B. Effects due to opposing pharmacologic activity
   1. local anesthetics and vasoconstrictors
   2. probenecid (Benemid) and aspirin
C. Alteration of bioavailability
   - bioavailability defined as how well the medication get to the target organ
   - systemic tetracyclines and dairy products
D. Plasma Protein Binding
   - Coumadin and NSAIDs
E. Biotransformation
   1. alcohol and acetaminophen-enhanced hepatotoxicity
   2. benzodiazepines and grapefruit juice
   3. clopidogrel (Plavix) and
      a. cigarette smoking
      b. proton pump inhibitors
      c. fluconazole (Diflucan)
   4. opiate metabolism and grapefruit juice
F. Renal Excretion
   - Lithium and NSAID’s-decreased excretion and increased lithium toxicity