Part B Question 8

Digoxin is most likely to have an adverse pharmacodynamic (as opposed to pharmacokinetic) interaction with which one of the following drugs?

A. Gentamicin.
B. Lithium.
C. Diltiazem.
D. Indomethacin.
E. Amiodarone

Answer: C

Pharmacokinetics: “what the body does to the drug”
- Relationship between the time course of drug concentrations attained in different regions of the body during and after dosing
- 4 major processes involved:
  1. Absorption
  2. Drug Distribution
  3. Drug Metabolism
  4. Excretion

Pharmacodynamics: “what the drug does to the body”
- Events resulting from the interaction of the drug with its receptor or other primary site of action

Drug Interactions:
- Administration of one drug (A) can alter action of another (B) by
  1. modification of the pharmacological effect of B w/o altering its concentration (pharmacodynamic interaction)
  2. alteration of concentration of B that reaches its site of action (pharmacokinetic interaction)

A. gentamicin
   - increases serum levels of digoxin (pharmacokinetic effect)

B. lithium
   - depletes potassium and so can ↑ effect of digoxin recommendation is that K+ is monitored

C. diltiazem
   - concurrent use of verapamil and diltiazem with digoxin may result in excessive bradycardia due to additive depression of AV nodal conduction (pharmacodynamic)

D. indomethacin
   - increases serum levels of digoxin (pharmacokinetic effect)

E. amiodarone
   - increases serum levels of digoxin (pharmacokinetic effect)