PHA 5127

FALL 2013

Case Study 2

True (A) or False (B)

1) A lipophilic drug cannot have a volume of distribution that is smaller than VT (T/**F**)
2) The pka of an acidic drug that shows perfusion limited distribution into tissues is likely to be small. (T/**F**)
3) The same dose of a drug is given orally either as a solution or in form of a slow dissolving crystal suspension. The solution will show higher maximum concentrations in plasma. (**T**/F)

Assume no active transport.

4) **T**/ F Compared to fat, the liver is likely to have a higher rate of uptake for small lipophilic drugs due to its higher blood flow rate.
5) T /**F** The rate with which hydrophilic compounds will move across well-built membranes will depend on the concentration gradient between total drug in plasma and total drug in tissue.
6) T /**F** Permeability limited distribution is generally seen for small, lipophilic drugs
7) **T**/F Free drug concentrations are always the same in plasma and tissues, when the distribution occurs instantaneously

8) A drug (lipophilic, unionized, low molecular weight) is showing in average a pronounced binding to plasma proteins of 99%. Between-subject variability of protein binding is pronounced. 1000mg of the drug is given as IV bolus injection to two patients. Patient 1 has a much stronger plasma protein binding for the drug (99.995%) than the second patient (99.99%). The tissue binding is the same in both patients and is equal to 90%

Based on the given information please indicate whether **patient 1** will have a larger (⬆), smaller (⬇) or identical (⟷) value compared to patient 2 for

- Total initial plasma drug concentration (C_0)
- Free initial plasma drug concentration (free C_0)
- fu
- Vd

A) CO↑,free CO↑, fu↓, Vd↓

B) CO↓,free CO↔, fu↓, Vd↑

C) CO↑,free CO↓, fu↓, Vd↓

D) CO↑,free CO↑, fu↑, Vd↔

E) None of the above Combinations

Assume a drug is substrate of a specific transport protein. What of the following statements are True (A) or False (B).

9) T/**F** Transporters do not use energy
10) T/**F** Transporters only eliminate drug from the body
11) T/**F** Transporters are only present in liver and kidney
12) **T**/F Transporters are saturable