This viva will test knowledge of pharmacokinetics and statistics
Draw the concentration time curve for an intravenous bolus of fentanyl. At this Viva candidates were asked to draw a concentration – time curve for an intravenous bolus of fentanyl, to label it and describe the information relating to that curve. Candidates were also asked about volume of distribution, half-life and clearance. In the second part to this Viva candidates were shown and asked to describe various types of data, mean and median values, normal distribution and critical evaluation of a study.

"Please draw a concentration - time curve for an intravenous bolus of fentanyl"
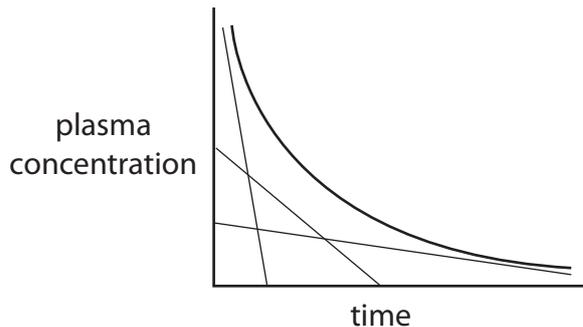
"Define volume of distribution and explain how it relates to half time"

Vd = amount of drug given/plasma concentration

half time is the time required to change amount of a drug in the body by half

in a single compartment model, half time = 0.693.Vd/clearance   (0.693 = log 2)

"What is the definition of clearance and extraction ratio?"

clearance =   usually volume of plasma in mls completely cleared of a substance per minute

extraction ratio = change in concentration of a drug pre and post organ/initial concentration

"Can you explain different types of data?"
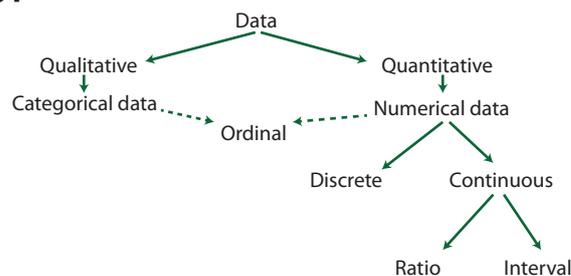
"How may the central tendency be described?"

the central tendency can be described by mode (most common variable), the median (the middle number is a range of numerical values) and the mean which is the average value in a numerical set.

"How can the degree of dispersion be described?"

The degree of dispersion is a the degree of spread of the values. It may be represented by the range, percentiles (clumping them into groups), and variance (how closely values cluster around the mean).

"What is standard deviation and standard error?"

Standard deviation is the positive square root of the variance. Standard error is the standard deviation divided by the square root of the sample size and is a measure of precision, it is used to calculate the confidence intervals. Confidence intervals are derived from the standard error and define a range of values that are likely to include a mean population parameter. The two ends of the range are called the confidence limits. It is the likelyhood that within the range the population parameter will be located.

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