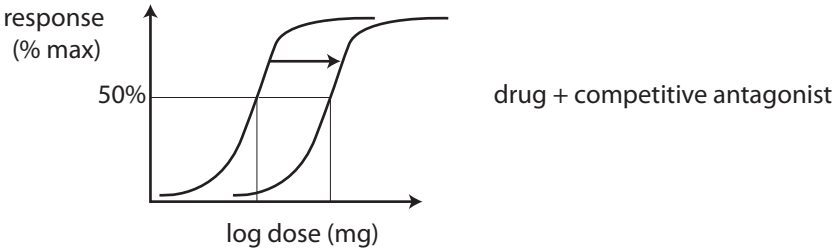
Second 2010
VIVA 1

Candidates were provided with a clinical scenario of a patient unable to take oral formulation of metoprolol and asked to describe the pharmacology associated with an alternative, intravenous preparation, and contrast it with the oral preparation. Candidates were also asked to discuss metoprolol associated adverse effects and their knowledge of agonist – antagonists relationships. Candidates struggled most with applying, and explaining the relevance of, basic pharmacological principles to account for fundamental clinical applications. Dose response curves were also not covered well.

"Describe the pharmacology of metoprolol"

Metoprolol is a class two anti-arrhythmic which is used for rate control and BP management
It is presented in both oral and IV formulations
acts by blockade of beta 1>beta 2 adrenergic receptors
its effects are via reduced chronotropy on phase 4 of pacemaker cells
side effects include hypotension, bradycardia, 1st degree heart block and beta 2 effects at higher doses
it is rapidly and almost completely absorbed orally but it has a high first pass metab, bioavailabilty 50%
it has high lipid solubility and crosses the BBB, but low protien binding
metabolised hepatically with genetic polymorphisms CYP2D6 resulting in two different half lifes 3 or 7hrs
excretion is in the urine with about 10% unchanged

"On a dose response curve please draw the effect of a competitive antagonist"



"On a dose response curve please draw the effect of a drug and a non competitive antagonist