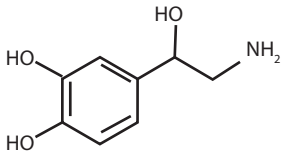
March 2011
QUESTION 23

Compare and contrast the pharmacology of Noradrenaline and Vasopressin

	Noradrenaline	Vasopressin (AKA ADH)
	Is a naturally occuring catecholamine	Is a naturally occuring nonapeptide
Released by	post ganglionic sympathetic nerves adrenal medulla (20:80 adrenaline)	produced by the hypothalamus released by the posterior pituitary
Structure		similar to oxytocin complex molecule with 9 amino acids
Uses	Maintenence of haemodynamic parameters	Catecholamine sparing drug in shock Diabetes insipidis Bleeding in vWF def / mild haemophilia
Pharmacodynamics	Higher doses act at alpha-1 receptors peripheral vasocontriction increased systolic/diastolic pressures may cause reflex bradycardia Lower doses have beta receptor activity positive iontropy and chronotropy increased MVO2	Acts at the GPCR Vasopressin receptors V1a on vascular smooth muscle vasoconstrictive V1a on platelets increase platelet aggregation V2 on the nephron antidiuretic actions
Parmacokinetics		
	IV formulation only Clear Solution 1:1000 8-12 mcg/min uptitrated to effect	IV (off label), IN, IM, SC Clear solution of synthetic vasopressin 5-10 units as requrired
	doesn't cross the BBB	
	Rapidly metabolised into adrenaline by COMT and MAO 25% removed in the lungs	Metabolised by peptidases to amino acids
	Half life is 2 minutes Excreted in urine as inactive metabolites	Half life is less than 20 minutes Excretion in urine as inactive metabolites
Side Effects	Excessive doses cause severe hypertension Reduced flow to organs splanchnic renal Issues with increased MVO2 and IHD	Hyponatraemia with H2O retention May cause severe vasocontriction -CVC only Arrhythmias at higher doses GIT smooth muscle constriction cramping, nausea, diarrhoea