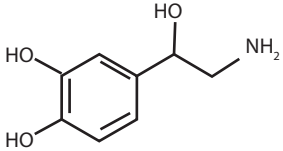


JULY 2007
QUESTION 6

Compare and contrast the pharmacology of noradrenaline and vasopressin

	Noradrenaline	Vasopressin (AKA ADH)
	Is a naturally occurring catecholamine	Is a naturally occurring 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	Maintenance of haemodynamic parameters	Catecholamine sparing drug in shock Diabetes insipidus Bleeding in vWF def / mild haemophilia
Pharmacodynamics	Higher doses act at alpha-1 receptors peripheral vasoconstriction increased systolic/diastolic pressures may cause reflex bradycardia Lower doses have beta receptor activity positive inotropy and chronotropy increased MVO ₂	Acts at the GPCR Vasopressin receptors V1a on vascular smooth muscle vasoconstrictive V1a on platelets increase platelet aggregation V2 on the nephron antidiuretic actions
Pharmacokinetics	IV formulation only Clear Solution 1:1000 8-12 mcg/min uptitrated to effect doesn't cross the BBB Rapidly metabolised into adrenaline by COMT and MAO 25% removed in the lungs Half life is 2 minutes Excreted in urine as inactive metabolites	IV (off label), IN, IM, SC Clear solution of synthetic vasopressin 5-10 units as required Metabolised by peptidases to amino acids 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 MVO ₂ and IHD	Hyponatraemia with H ₂ O retention May cause severe vasoconstriction -CVC only Arrhythmias at higher doses GIT smooth muscle constriction cramping, nausea, diarrhoea