

FEB 2008
QUESTION 23

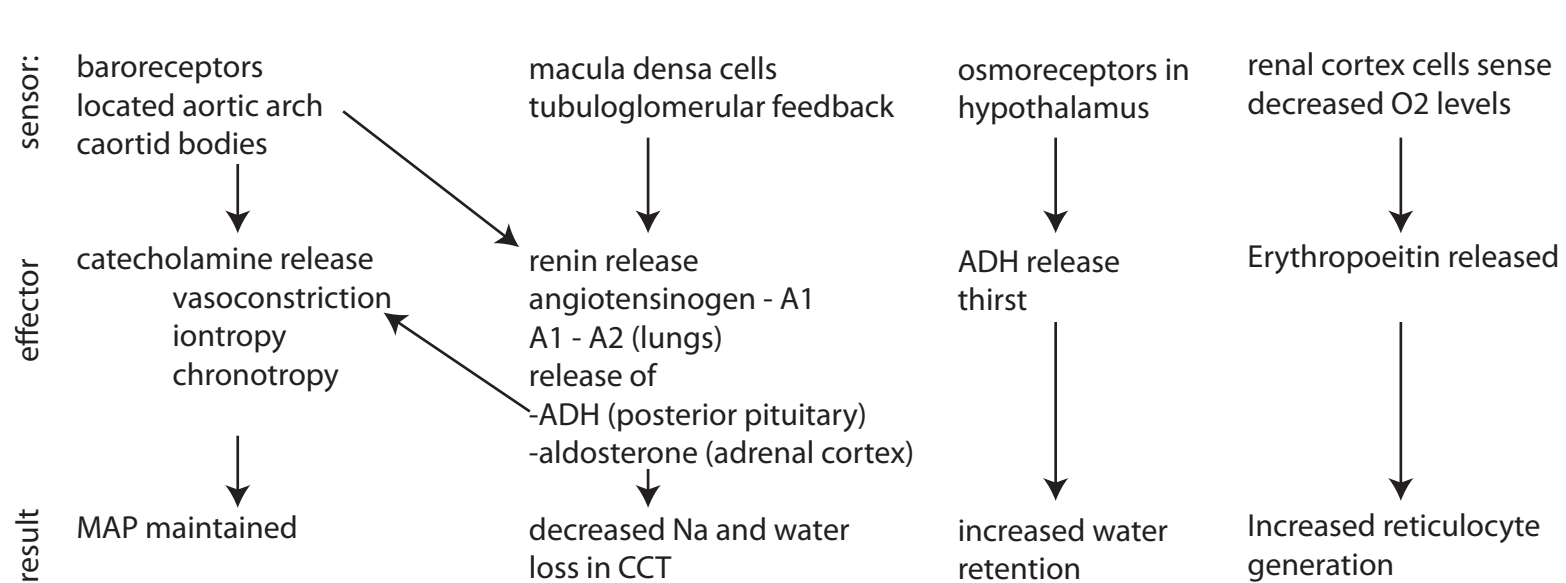
Describe the hormonal response to hypovolaemia following acute blood loss of 1 litre of blood in the adult. Include changes that occur in the first 24 hours

1000ml of blood represents a loss of total blood loss of 20% in a 70kg male.

This is a moderate loss of blood and results interrelated hormonal and neural responses to maintain BP

neural response

hormonal responses



Catecholamine release

sympathetic outflow

noradrenaline from post synaptic nerve terminals drive mainly vasoconstriction

adrenaline (adrenal medulla) augments norad and increases iontropy/chronotropy via b1 receptors

Antidiuretic hormone (vasopressin)

V1 receptors causing vasoconstriction

V2 receptors causing reduced diuresis

Aldosterone release

from the adrenal cortex

acts on the distal collecting duct to stimulate sodium retention and potassium loss via principle cells

EPO

from the renal cortex in response to decreased O2 delivery -less Hb in haemorrhage as O2 flux equation stimulates increased erythropoiesis

Other hormones

Adenosine/NO is regulated by the tubuloglomerular feedback system

Cortisol is released and augments the neural responses

Glucagon release sensitises adrenergic receptor responses