Manifestations of Altered F&E balance Part 2 Cheat Sheet

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What is Dehydration?

The other end of the spectrum from oedema

Occurs when water loss exceeds water intake over a period of time and the body is in a negative balance

Caused by decrease of ECF volume - loss of Na+ containing fluid from the body

Causes include: vomiting, diarrhea, haemorrhage, burns, profuse sweating, water deprivation, and diuretic abuse

Hemorrhagic shock classification

	Class I	Class II	Class III	Class IV
% Blood loss	Up to 15%	15-30%	30-40%	>40%
HR	Normal	Mild tachycardia	Moderate tachycardia	Severe tachycardia
BP	Normal	Normal to decreased	Decreased	Decreased
RR	Normal	Mild tachypnea	Moderate tachypnea	Severe tachypnea
Urine output	Normal	0.5-1mL/kg/h (min. goal)	0.25-0.4mL/kg/h (markedly decreased	Negligible
Mental status	Slightly anxious	Mildly anxious	Anxious/confused	Confused/lethargic
Fluid replacement	Crystalloid	Crystalloid	Crystalloid & blood	Crystalloid & blood

Fluid balance

Obligatory fluid loss
Urine (obligatory), Feces, Cutaneous transpiration, Sweat, Expired air
Totals to 1500mL
Required for normal function and health
Facilitative fluid loss
Urine (facilitative)
Totals 1000mL
The ability to adapt to various situations/conditions
A patient should be urinating every 6 hours
Absolute minimum urine output is 30cc/hour
Fluid intake
Performed water (food & drink)
Totals 2300mL

Pathophysiological rationale for shock

Vital signs	Pathophysiological rationale
Increased HR	SNS increases HR to maintain CO despite decrease in SV to support perfusion of O2 to major organs and tissues
Decreased BP	Decrease in circulating volume leads to decreased venous return to the heart, decreased preload, decreased SV and decreased CO and compensation for vasoconstriction no longer effective
Skin is pale, cool and clammy	Body is attempting to maintain critical systems, so tissue perfusion to the skin is reduced

Hypovolemic shock

Occurs when there is inadequate intravascular fluid volume which leads to inadequate tissue perfusion

Manifestations:	Decreased blood pressure
	Increased heart rate, respiratory rate
	Pollor, cool, and clammy skin
	Decreased urine output
	Anxiety, confusion, Agitation

Hypovolemic shock (cont)

Average adult blood volume for a female is 4-5L of blood and 5-6L for a male
Approximately 8% of your body weight is blood
Average blood volume in a 70kg person is 5.5L, so mild loss = 825mL, Class II loss is 825mL-1.65L, and class III is 1.65-2.2L

IV fluids

Crystalloids	
Equal to body fluid	
Keeps fluid in the intravascular volume without causing a fluid shift from one compartment to the other	
Usually used for replacement or maintenance fluids:	Plasma-lyte
	Normal saline
	D5W
An isotonic solution, in a nutshell, is a balanced water-solute concentration	
When a solution is isotonic, it is at equilibrium	
Plasma expanders (Colloids):	Albumin
	Gelofusine
Colloids are gelatinous solutions that maintain a high osmotic pressure in blood	
Particles in the colloids are too large to pass semi-permeable membranes such as capillary membranes, so colloids stay in the intravascular spaces longer than crystalloids	

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Published 7th March, 2022.
Last updated 16th March, 2022.