

Fluid and electrolyte replacement

<http://www.healthsystem.virginia.edu/internet/anesthesiology/Dept-Info/Education/Lectures/blood.cfm>

DAILY REQUIREMENTS:

40 ml water per kg per day

THUS 70kg man requires about

Na+ = 2mmol per kg per day =

And thus=

K+ = 1 mmol per kg per day =

3 litres per day
140 mmol Na+
140 mmol Cl-
70 mmol K+

LOSSES:

Through vomit:

= acid and thus K+

= salt (NaCl)

→ hypokalemic alkalosis

Through diarrhoea:

= isotonic dehydration

= bicarb deficit acidosis

What is in those fluids bags:

Bag	Na+	Cl-	K+	Glucose
NS	150	150	-	-
5%dex	-	-	-	5%
4%dex + 1/5th NS	30	30	-	4
Hartmanns	142	142	8	-

THUS one bag of saline comprises a whole days worth of sodium and chloride.

BUT there are 2 more litres of fluid to come from somewhere

AND there's still potassium to replace (but on day 1 post-op there is no need for K+)

So... give ONE BAG OF SALINE in 8hrs

Then make the next two bags 5% Dextrose.

Rate of infusion: 1 litre in 8 hrs = 125mls per hour

REPLACING LOSSES

Give the FIRST HALF of replacement in first 8 hours

Give the OTHER HALF in the last 16 hrs

BULK OF SURGICAL LOSSES IS NORMAL SALINE-REPLACEABLE

Assessment of dehydration:

1 unit of blood lost: tachycardia

2 units of blood lost change in pulse width
(.e. diastolic pressure drops)

3 units of blood lost: drop of blood pressure,
urine output @ low edge of normal

10% blood loss = shock symptoms

Acutely Dehydrated (hypovolemic) patient?

You may want to re-infuse them STAT

(i.e as fast as it will go in)- BUT: watch the urine output:

THERE SHOULD BE A CHANGE WITHIN 5 MINUTES

If not there may be a serious kidney problem

POTASSIUM REPLACEMENT:

Can give 10mmol/hr

-without monitoring

BUT: have to recheck,
recheck, recheck!

- Too much potassium
irritates the vein. Thus only
give 60 mmol per bag, else
→ thrombophlebitis

ORAL POTASSIUM:

"slo-K tablets" of 150mmol
not all is absorbed:

= give 4, then wait 4 hrs

- then check EUC and give
another 4