PARENTERAL FLUID THERAPY FOR TERM NEONATES (UP TO 4 WEEKS OF AGE)

DoH www.health-ni.gov.uk

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Essential Monitoring, Observations & Reassessment

INITIALLY

Admission Weight.

U&E (unless baby is well & for elective surgery)

Each shift
Handover and review fluid management plan.

12 Hourly -
Clinical assessment, fluid balance, glucose

24 Hourly -
Clinical reassessment.
U&E (more often if abnormal; 4-6hourly if $Na^+ < 130$ mmol/L).
Weight and weight changes

ILL NEONATE
Hourly - HR, RR, BP and AVPU scale. Fluid balance (urine osmolality if volume cannot be assessed). **2 - 4 hourly** – glucose, U&E, +/- blood gas.

Enteral Intake and Medications:
Assess and record the volume and type of enteral fluids and IV medications.

If plasma $Na^+ < 130$mmol/L or > 150mmol/L or plasma Na^+ changes > 5mmol/L in 24 hours get senior help

Is shock present? YES

Resuscitation ADMINISTER FLUID BOLUS OVER LESS THAN 10 MINUTES

Give 10 - 20 ml/kg of glucose-free crystalloids that contain sodium in the range 131 - 154 mmol/L IV or Intraosseous
[10 ml/kg if history of trauma, haemorrhage]
Reassess. Repeat bolus if needed and get senior help.

NO

Can child be managed with enteral fluids? YES

PRESCRIBE ENTERAL REHYDRATION SOLUTION

Burns: initiate departmental protocol. Renal / cardiac / hepatic - get senior help.

Is there a fluid deficit? YES

Replacement: Redistribution ESTIMATE DEFICIT

FLUID DEFICIT = (% dehydration x kg x 10) as mls of:
Isotonic crystalloids that contain sodium in the range 131 - 154 mmol/L
The volume of fluid to be prescribed is: fluid deficit MINUS volume of any fluid bolus received
Prescribe this residual volume of deficit separately from the maintenance prescription.
Give over 48 hours.
ONGOING LOSSES: calculate at least 4 hourly. Replace with an equal volume of:
sodium chloride 0.9% (with pre-added potassium)
Change fluid type and volume according to clinical reassessment, electrolyte losses and test results

NO

Prescribe Maintenance Fluids

On senior advice

Routine Maintenance

Fluid choices:
Initially use isotonic crystalloids that contain sodium in the range of 131- 154 mmol/L with 5- 10% glucose.

Fluid Rate:
Alter fluid rate according to clinical reassessment (including changes in enteral intake). Adjust fluid type according to investigations. If sodium rises above 145 mmol/L change to sodium chloride 0.45% with pre-added glucose.

COMMENCE ENTERAL FLUIDS & DISCONTINUE IV FLUIDS AS SOON AS CLINICALLY APPROPRIATE

Patients particularly at risk from hyponatraemia
- peri-operative patients
- head injuries
- gastric losses
- CNS infection
- severe sepsis
- hypotension
- intravascular volume depletion
- bronchiolitis
- gastroenteritis with dehydration
- abnormal plasma sodium and also if less than 138 mmol/L
- salt-wasting syndromes

Symptomatic Hyponatraemia - potential symptoms: nausea, vomiting, irritability, altered level of consciousness, seizures or apnoea.

Routine Maintenance

CALCULATION OF 100% RATE

Birth to day 1:	2.0 - 2.5 ml/kg/hr
day 2:	3.0 - 3.3 ml/kg/hr
day 3:	3.3 - 4.0 ml/kg/hr
day 4:	4.0 - 5.0 ml/kg/hr
day 5 - 28:	5.0 - 6.3 ml/kg/hr

Surface Area Method

insensible losses ($300 - 400 ml/m^2/24$ hrs) plus urinary output

Acute Symptomatic Hyponatraemia: raise Na^+ by 5 - 6mmol/L in 1-2 hours using sodium chloride 2.7% IV bolus(es). Aim for max 10mmol/L rise in 5 hours

Bolus	Volume	Speed	Comment
No.1	2ml/kg	10 mins	Give bolus No.2 if still symptomatic
No.2	2ml/kg	10 mins	Check U&E; Give No.3 if symptomatic
No.3	2ml/kg	10 mins	If symptomatic reconsider diagnosis
First 48 hours: 2 hourly U&E, max Na^+ 135 mmol/L , max rise 20mmol/L			

Hypokalaemia (< 3.5 mmol/L): Check for initial deficit. Maintenance fluid with pre-added potassium required. For concentration > 40mmol/L **get senior help.**
Hypoglycaemia (< 3 mmol/L). Medical Emergency: give 2 ml/kg bolus of glucose 10%. Review maintenance fluid, consult senior and recheck level after 15-30 mins. INTRA-OPERATIVE PATIENTS: consider monitoring glucose.