

McCarroll, Myrtle

From: McCarthy, Miriam
Sent: 16 April 2004 09:04
To: Carson, Ian
Subject: FW: HYPONATRAEMIA

Ian,

Happy to be involved in any meeting with you, if you would find that helpful-- no doubt a review of some of the background discussion influencing the final guidance may be useful to Cyril Chantler.

Miriam

-----Original Message-----

From: Cyril Chantler [mailto:chantler@]
Sent: 15 April 2004 12:31
To: Burne, Alison; cyril.chantler@
Cc: Carson, Ian; McCarthy, Miriam; Stafford, Anne; Garrett, Elizabeth;
Campbell, Dr Henrietta
Subject: Re: Dr Henrietta Campbell

Delighted to help, need to think and will then contact Ian. Best wishes
Cyril PS Heather tells me the first draft of the report will be ready
today, presumably after I and you have seen it it will go to all members for
approval and changes and when agreed will be released. What is the process
and time table?

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From: "Burne, Alison" <Alison.Burne@ >
To: <cyril.chantler@ >
Cc: "Carson, Ian" <Ian.Carson@ > "McCarthy, Miriam"
<Miriam.McCarthy@ > "Stafford, Anne"
<Anne.Stafford@ > "Garrett, Elizabeth"
<Elizabeth.Garrett@ > "Campbell, Dr Henrietta"
<Henrietta.Campbell@ >
Sent: Thursday, April 15, 2004 12:16 PM
Subject: From: Dr Henrietta Campbell

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> Kind regards and best wishes,
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> <<Hypno910WallChart.pdf>>
>
> Etta

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> Alison Burne
> Senior Personal Secretary to
> Dr Henrietta Campbell, Chief Medical Officer (NI)
> Dept of Health, Social Services & Public Safety
> C5.21 Castle Buildings
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> BELFAST BT4 3SQ

> Tel:
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Coyle, Briega

From: Campbell, Dr Henrietta
Sent: 15 April 2004 12:46
To: 'Cyril Chantler'
Subject: RE: Dr Henrietta Campbell

Importance: High

Dear Cyril

Many thanks for your response.

On the Medical School report I will ask Paul Simpson to try to set out a process and timescale and get in touch with you. I have not seen the draft yet but it is good news that one is ready.

Regards, Etta

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Hypno%20WallChart.pdf (67 KB)

Etta

Mrs Alison Burne
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Dept of Health, Social Services & Public Safety
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(
www.dhsspsni.gov.uk
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any CHILD RECEIVING PRESCRIBED FLUIDS is AT RISK OF HYPONATRAEMIA

INTRODUCTION

- Any child on IV fluids or oral rehydration is potentially at risk of hyponatraemia.
- Hyponatraemia is potentially extremely serious, a rapid fall in sodium leading to cerebral oedema, seizures and death. Warning signs of hyponatraemia may be non-specific and include nausea, malaise and headache.
- Hyponatraemia most often reflects failure to excrete water. Stress, pain and nausea are all potent stimulators of anti-diuretic hormone (ADH), which inhibits water excretion.
- Complications of hyponatraemia most often occur due to the administration of excess or inappropriate fluid to a sick child, usually intravenously.
- Hyponatraemia may also occur in a child receiving excess or inappropriate oral rehydration fluids.
- Hyponatraemia can occur in a variety of clinical situations, even in a child who is not overtly "sick". Particular risks include:
 - Post-operative patients
 - CNS injuries
 - Bronchiolitis
 - Burns
 - Vomiting

BASELINE ASSESSMENT

Before starting IV fluids, the following must be measured and recorded:

- **Weight:** accurately in kg. [In a bed-bound child use best estimate.] Plot on centile chart or refer to normal range.
- **U&E:** take serum sodium into consideration.

FLUID REQUIREMENTS

Fluid needs should be assessed by a doctor competent in determining a child's fluid requirement. Accurate calculation is essential and includes:

Maintenance Fluid

- 100mls/kg for first 10kg body wt, plus
- 50mls/kg for the next 10kg, plus
- 20mls/kg for each kg thereafter, up to max of 70kg
[This provides the total 24 hr calculation; divide by 24 to get the mls/hr].

Replacement Fluid

- Must always be considered and prescribed separately.
- Must reflect fluid loss in both volume and composition (lab analysis of the sodium content of fluid loss may be helpful).

CHOICE OF FLUID

- **Maintenance fluids** must in all instances be dictated by the anticipated sodium and potassium requirements. The glucose requirements, particularly of very young children, must also be met.
- **Replacement fluids** must reflect fluid lost. In most situations this implies a minimum sodium content of 130mmol/l.
- **When resuscitating** a child with clinical signs of shock, if a decision is made to administer a crystalloid, normal (0.9%) saline is an appropriate choice, while awaiting the serum sodium.

- The composition of oral rehydration fluids should also be carefully considered in light of the U&E analysis.

Hyponatraemia may occur in any child receiving any IV fluids or oral rehydration. Vigilance is needed for all children receiving fluids.

MONITOR

- **Clinical state:** including hydration status. Pain, vomiting and general well-being should be documented.
- **Fluid balance:** must be assessed at least every 12 hours by an experienced member of clinical staff.

Intake: All oral fluids (including medicines) must be recorded and IV intake reduced by equivalent amount.

Output: Measure and record all losses (urine, vomiting, diarrhoea, etc.) as accurately as possible.

If a child still needs prescribed fluids after 12 hours of starting, their requirements should be reassessed by a senior member of medical staff.

- **Biochemistry:** Blood sampling for U&E is essential at least once a day - more often if there are significant fluid losses or if clinical course is not as expected.

The rate at which sodium falls is as important as the plasma level. A sodium that falls quickly may be accompanied by rapid fluid shifts with major clinical consequences.

Consider using an indwelling heparinised cannula to facilitate repeat U&Es.

Do not take samples from the same limb as the IV infusion.

Capillary samples are adequate if venous sampling is not practical.

Urine osmolality/sodium: Very useful in hyponatraemia. Compare to plasma osmolality and consult a senior Paediatrician or a Chemical Pathologist in interpreting results.

SEEK ADVICE

Advice and clinical input should be obtained from a senior member of medical staff, for example a Consultant Paediatrician, Consultant Anaesthetist or Consultant Chemical Pathologist

- In the event of problems that cannot be resolved locally, help should be sought from Consultant Paediatricians/Anaesthetists at the PICU, RBHSC.



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