Emergency Medicine Cases

Dr Greg McDonald

Topics
- Gastroenteritis and dehydration in children
- ECGs
- Sepsis
- Radiology

Dehydration

Gastroenteritis
- Viral 50-70%
  - Rotavirus
  - Adenovirus
  - Norovirus
- Bacterial 15-20%
  - Campylobacter
  - Salmonella
  - Shigella

Patient
- 4 year old boy; D & V for 24/24
  - Listless
  - Sunken eyes
  - Reduced urine output
  - Dry mouth
  - HR 120
  - Resps 28
  - Reduced skin turgor

Dehydration

Mild; moderate; severe → None; some; severe
- Clinical findings – see Gorelick criteria
- Biochemistry – urea; bicarbonate
- Gold standard – pre-treatment weight versus discharge weight

Gorelick Criteria

<table>
<thead>
<tr>
<th>Degree of Dehydration</th>
<th>Number of Clinical Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (&quot;None&quot;)</td>
<td>≤3</td>
</tr>
<tr>
<td>Moderate (&quot;Some&quot;)</td>
<td>≥3</td>
</tr>
<tr>
<td>Severe</td>
<td>≥7</td>
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<table>
<thead>
<tr>
<th>Clinical Finding</th>
<th>Prevalence</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced turgor</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>Capillary refill (capillary)</td>
<td>0.19</td>
<td>13.3</td>
</tr>
<tr>
<td>General appearance</td>
<td>0.26</td>
<td>3.03</td>
</tr>
<tr>
<td>Abdomen 3</td>
<td>0.30</td>
<td>4.26</td>
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<tr>
<td>Abnormal respiration</td>
<td>0.20</td>
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<tr>
<td>Dry mucous membranes</td>
<td>0.42</td>
<td>4.29</td>
</tr>
<tr>
<td>Sunken eyes</td>
<td>0.32</td>
<td></td>
</tr>
<tr>
<td>Abnormal radial pulse</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td>Tachycardia</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td>Decreased urine output</td>
<td>0.59</td>
<td></td>
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Rehydration
- Oral vs NG vs IV
  - Oral / NG rehydration (+ ondansetron) is best
  - Weight gain & total fluid intake the same
  - ~ Complication rate
  - Shorter hospital stay?
  - More rapid return to normal diet
- Only 1 in 25 fail oral rehydration
- BUT …… "I'm doing bloods anyway, I might as well put a drip in" → rapid IV saline load then oral rehydration

Oral Rehydration
- Ondansetron (0.1-0.2mg/kg) – oral wafer/tab
  - Reduces vomiting (by 2/3); increases oral intake; shortens ED stay BUT does not reduce hospital admission rate or return to ED
- Principles
  - Oral rehydration over 4-6 hours or so
  - Start @ 5-10mls q5 minutes; persevere
  - Continue breast feeding throughout
  - Return to age-appropriate diet including full-strength formula
  - "Bowel rest" not indicated

Oral Rehydration – General Approach
- "None" – age-appropriate diet; encourage fluids; investigate cause of V and/or D; education
- "Some" – IV/bloods; rapid IV hydration 2-4hrs; ± ondansetron → IV or oral (NG) rehydration depending on bloods and clinical response; investigate cause ± admit
- "Severe" – IV/bloods; NS bolus(es); IV rehydration; ± ondansetron; admit

ECGs
1. Chest pain
2. Collapse
3. Tachycardia
4. Tachycardia
5. SOB
6. Same patient
7. Vomiting / weight loss
Chest Pain

A 65 year old man is brought to your Emergency Department by his wife, suffering 90 minutes of central, tight retrosternal pain which came on while he was mowing the lawn.

Chest Pain – High risk

- Pain > 15 minutes or repetitive
- ST depression > 0.5mm or T inversion > 2mm
- Transient elevation > 0.5mm
- Haemodynamic compromise
- Sustained VT
- Syncope
- Diabetes
- Chronic renal failure
- Prior PCI or CAGs in last 6 months
- Elevated troponin

Wide-complex tachycardia

- No RS complexes in chest leads
- RS > 100ms in chest leads
- AV dissociation
- QR or QS in V6

- Initial R wave aVR
- R or q wave >40ms in aVR
- Notching of initial downstroke of –ve QRS in aVR

SOB

- 78 year old woman with collapse at home 8 days after knee surgery
- History of hypertension
- Agitated; confused
- HR 130; BP 90/60; SOB

47 year old woman with vomiting and weight loss

- ECG consistent with ?
- Sinus arrhythmia
- VEBs
- ST depression
- QT prolongation?
- U waves

Hypokalaemia

Results

- K 1.6
- Na 133; Cl 65; HCO3 45
- Ur 34.4; Cr 359; eGFR 12ml/min
- CK ~ 3000
- Albumin 19; Ca low; Phos high
- TFTs NAD

Malnutrition

Infected ascites (gm +ve cocci)
Sepsis

A 24 year old man is brought to your department after having collapsed at home. He has had a “flu-like” illness for 24 hours with rigors and myalgia. He has no significant past history. On arrival in the department the patient is confused and agitated. He has a pulse rate of 140, a BP of 85/50 and complains of a sore chest.

Manuel Rivers

- SIRS = 2 out of 4 of Temp; HR > 90; Resp > 20 or PaCO2 < 32; WCC
- Septic Shock = BP OR lactate + Low UO OR Altered mentation OR End organ
- A
- B SpO2 > 93%
- C BP > 90 OR MAP > 70; Neck veins/CVP; U.O. > 0.5mls/kg/hr; Hct > 30
- Antibiotics
- Dextrose

Radiology - CXR

- Airway
- Breathing
- Circulation
- D other things
  - Soft tissue
  - Ribs / Bones
  - Lines / equipment