Clinical Design & Innovation
Person-centred, co-ordinated care

PAEDIATRICS

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Paediatric Acute Gastroenteritis (AGE)

BACKGROUND

- Causes include viral, bacterial, and protozoal infection.
- In most cases, vomiting lasts for 1-2 days and diarrhoea for 5-7 days.
- Rates of paediatric hospital admissions has reduced since the introduction of the rotavirus vaccination.
- Norovirus is a common pathogen to cause acute gastroenteritis in the post-rotavirus vaccination era (1).

HISTORY

- Vomiting
- Diarrhoea – stool frequency, blood, mucous
- Abdominal pain
- Oral fluid intake
- Urine output
- Fever
- Recent travel
- Exposure to animals or contaminated water / food

EXAMINATION

1. Weight
2. Vital signs
3. General observation
   Pallor, irritability, altered conscious state, decreased activity level
4. Hydration status
   Assess for signs of shock
   (Refer to table below)
5. Abdominal examination

- Focal abdominal tenderness
- Guarding
- Significant distension
- Absent or high-pitched bowel sounds

INVESTIGATIONS

- Glucose check, ketones
- Electrolytes if admitted for IV fluid rehydration
- Stool microbiological testing should be performed in the case of bloody diarrhoea or if septicaemia is suspected or immunocompromised patient.

TREATMENT

Oral re-hydration salts (ORS) and early re-introduction of feeds and solids.

Ondansetron: Consider in moderate-severe dehydration (only if vomiting and diarrhoea, wait 30 minutes before commencing an oral fluid trial)

Mild / moderate dehydration

- Encourage oral ORS / feeds
- Oral ORS (or half-diluted apple juice) at 10-20ml kg over one hour, in frequent small amounts

Moderate dehydration (with poor oral intake)

- Nasogastric Tube Rehydration (NGTR) is safe and effective, for most even with moderate dehydration.
- Most will stop vomiting after NGTR started.
- Suitable <2 years of age
- Use dioralyte (ORS) 25ml/Kg/hr over 4 hours (total 100ml/kg)

Severe dehydration +/- shock

- Intravenous fluids (bolus 20ml/kg if shocked)
- When signs and symptoms of shock have resolved, admit for fluid rehydration and monitoring of electrolytes (maintenance, deficits and ongoing losses).
- If systemically unwell consider differential diagnoses.

Dehydration %	Mild 3-5%	Moderate 6-10%	Severe >10%/Shocked
Mental Status	Normal	Listless, irritable	Lethargy, altered
Heart rate	Normal	Increased	Increased
Quality of pulses	Normal	Normal/decreased	Decreased/thready
Capillary refill	Normal	Prolonged >3sec	Prolonged >3sec
Blood pressure	Normal	Normal	Normal/decreased
Respirations	Normal	Tachypnoea	Tachypnoea
Eyes	Normal	Slightly sunken, decreased tears	Sunken, no tears
Fontanelle	Normal	Sunken	Sunken
Urine Output	Normal/decreased	Decreased	Oliguric/anuric

TAKE HOME MESSAGES

- The differential diagnosis for fever and vomiting in infants should prompt consideration of other causes of infection, including UTI, sepsis and meningitis.
- If a child becomes lethargic, is unable to tolerate oral fluids or has significantly reduced output, reassess.
- Bloody diarrhoea may be caused by verotoxigenic e. coli which requires close follow-up for development of complications (including Haemolytic uraemic syndrome (HUS)

PILLARS OF MANAGEMENT

- Most with mild/no dehydration can be discharged without a trial of fluids after appropriate written advice
- Use enteral rehydration with ORS where possible.
- Early feeding (as soon as rehydrated) reduces stool output and aids gastrointestinal tract recovery. Continue breastfeeding and other milk feeds, stop fortified feeds. Avoid carbonated drinks (2,3).

REFERRAL

Consider alternative diagnosis in the following :

- Severe/localised abdominal pain or abdominal signs
- Unwell with blood in stool
- Looks very unwell or altered consciousness
- Bilious (green) vomit
- Age <6 months
- Short gut syndrome/ Ileostomy
- Complex/cyanotic congenital heart disease
- Renal insufficiency or adrenal insufficiency
- Metabolic conditions
- Transplant patients or on Immunosuppression or chemotherapy
- Repeated presentations for same/ similar symptoms

Ref: Paediatric Gastroenteritis 10/23. CDI/0056/2.0/2023

REFERENCES:

1. Halasa N, Piya B, Stewart LS, Rahman H, Payne DC, Woron A, et al. The Changing Landscape of Pediatric Viral Enteropathogens in the Post–Rotavirus Vaccine Era. Clinical Infectious Diseases. 2021 Feb 16;72(4):576–85.

2. Hayden J, Mcnamara R, Kandamany N, Blackburn C, Barrett M. Gastroenteritis: Acute Management. https://www.olchc.ie/healthcare-professionals/clinical-guidelines/gastroenteritis.pdf

3. Royal Children's Hospital Melbourne. Gastroenteritis. Clinical Practice Guidelines. 2020.