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Encopresis and Investigation of UTIs in Children - Concurrent Workshop Repeated

Saturday, 22 June 2013

Start 8:30am

Duration: 55mins

Monet

Start 9:35am

Duration: 55mins

Monet



 **Rotorua GP CME 2013** 

General Practice Conference & Medical Exhibition

20-23 June 2013 | Energy Events Centre | Rotorua

Faecal Incontinence

Investigation of UTI in children



JOHAN MORREAU GPCME 2013

Frequency of Bowel Motions



Normal frequency of bowel movements

Age	Bowel movements	
	per week	per day
0-3 months (breast fed)	5-40	2.9
0-3 months (formula fed)	5-28	2.0
6-12 months	5-28	1.8
1-3 years	4-21	1.4
→3 years	3-14	1.0

Adapted from Fontana et al, 1987.

Constipation



- Difficult passage of infrequent, dry, hard stools that often cause pain and discomfort
- Less than three stools per week
- More than one episode of faecal incontinence per week
- Large stools in the rectum or palpable on abdominal examination
- Passing of very large stools that obstruct the toilet
- Retentive posturing and withholding behaviour

Faecal Incontinence



- Passage of stools in an inappropriate place – for 8/52.

Faecal impaction

- Severe constipation with a large faecal mass in the rectum or the abdomen – not likely to be passed voluntarily

Constipation - causes



- **Usually functional**
- **Always ask about cows milk intake , timing of passage of meconium, medication**

Food changes

- When changing from breast to formula feeding and when weaning onto solids
- When switching formula feeds.

Dehydration

- Reduced fluid intake (illness-altitude) and Activity

Constipation - causes



Pain

- Nappy rash can lead to pain on defecation.
- Following an anal tear or anal fissure caused by passing hard and large stools.
- Acute perianal infection due to group A beta haemolytic streptococcal infection.

Environmental factors postponing defaecation

- Not wanting to go to the toilet at school

Constipation - causes



Control issues - Psychosocial stressors

- Birth of a sibling
- Parental disharmony
- Moving house
- Abuse including neglect

What happens ? Physiology ?



- Up to 63% of children with constipation and soiling have had painful defecation beginning <3 years of age
- Voluntary withholding of the stool by the child to avoid pain initiates a vicious circle.
- A very large stool reinforces the experience of pain and anal trauma.
- Overflow diarrhoea or soiling is caused by watery faeces trickling through hardened faeces that have been retained in the rectum and colon
- Rectal sensation diminished (brain switches off !)



THE VICIOUS CYCLE OF CONSTIPATION

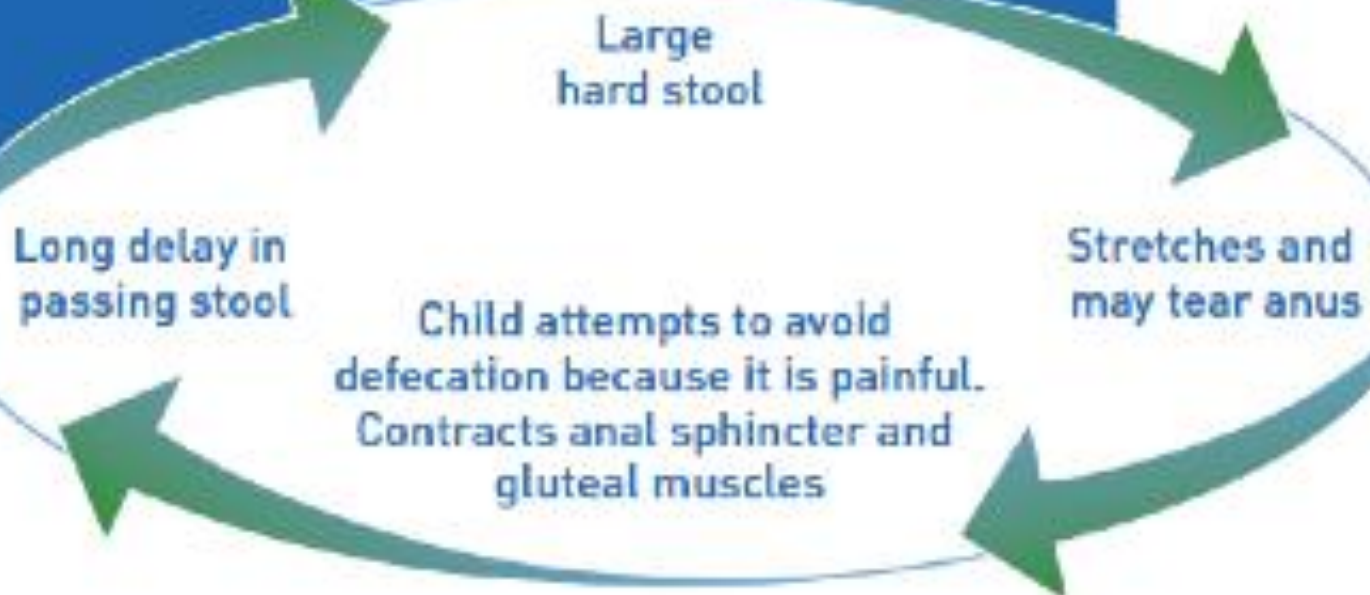


Figure 3:

Adapted from Loening-Baucke, 1996.

Symptoms/Complications



- **Abdominal pain**
- **Reduced appetite**
- **Nausea and vomiting**

- **Urinary incontinence or bedwetting**
- **Recurrent urinary tract infection**
- **Urinary retention**
- **Vulvovaginitis**

Always Rx Constipation first

History/Examination



- Chronologic History is critical – answers most questions re etiology, primary vs secondary pathology, complications
- Establish parental / age appropriate motivation , capability to engage
- Examination – General well being , walking , weight , abdomen, anus, faeces
- + /- Xray, thyroid function, Anemia ,??

Bristol Stool Chart

THE BRISTOL STOOL FORM SCALE (for children) choose your POO!		
type 1		looks like: rabbit droppings Separate hard lumps, like nuts (hard to pass)
type 2		looks like: bunch of grapes Sausage-shaped but lumpy
type 3		looks like: corn on cob Like a sausage but with cracks on its surface
type 4		looks like: sausage Like a sausage or snake, smooth and soft
type 5		looks like: chicken nuggets Soft blobs with clear-cut edges (passed easily)
type 6		looks like: porridge Fluffy pieces with ragged edges, a mushy stool
type 7		looks like: gravy Watery, no solid pieces ENTIRELY LIQUID

Management



Education

- To alleviate blame
- To enlist cooperation

Disimpaction .Always look up doses if uncertain
/make yourself familiar with a regimen

- Oral
- Rectal
- Manual

Disimpaction



- Critical to disimpact before starting maintenance therapy.
-
- The oral route is preferred - adherence to the prescribed regimen may be a problem.
- Suppositories and enemas are rarely indicated - invasive and distressing - may achieve disimpaction sooner.
-
- The treatment of choice is best decided after discussion with the child and their family - essential for compliance
- Choice of medication is not as important as the parents' and child's compliance .

Oral Treatment course for faecal impaction

- 2-11 years -Movicol Half (Osmotic laxative)
- >12 years or older Rx Movicol
- 60ml H₂O per sachet plus fluids+

Treatment course for faecal impaction in 2–11 year-olds

Age (years)	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
	Number of Movicol Half® sachets						
2–5	2	4	4	6	6	8	8
6–11	4	6	8	10	12	12	12

Oral Disimpaction



- Movicol Half (Australia / NZ) (osmotic)
- Movicol
- Picoprep (stimulant) eg for older child - one satchet in large glass of water followed by 1 litre fluid (sometimes difficult to get them to drink it)
Repeated 1-3 times
- Senna (stimulant) - melanosis coli - best thought of as 'staining' the bowel rather than affecting it adversely.

Rectal disimpaction



- Micro-enemas such as Microlax®
- Glycerol suppositories
- Bisacodyl suppositories

Maintenance therapy



Medications

- a. Stimulants eg Senna at night
- b. Softeners eg lactulose - enough to keep motion formed but soft
- c. Ongoing Movicol eg Movicol 1/2 , 1 sachet per day

Toileting programs

May need psychologist , social worker support

eg star charts, child chosen reinforcement (with parents making a big deal of it)for achievable , agreed milestone

- a. Sitting on toilet after meal (5-10 min)
- b. Doing a pooh (teko) on the toilet

Diet



- Overemphasized
- Regular, balanced meal pattern.
- Adequate fibre intake. Aim for a variety plus fruit and vegetables
- Ensure an adequate intake of fluids.
- Rx Whole of family approach including purchasing

Follow up



- Regular follow-up needed take a 'whole child' approach . Some DHB's have an Encopresis nurse
- Demystify constipation and faecal impaction
- No blame
- Include structure in the child's toileting routine
- Emphasize need for long-term treatment to avoid relapse (6 months plus)
- Continue to assess general health and appetite.
- Regular contact via telephone or clinic is needed.
- IT WORKS – especially if everyone takes time and is motivated

Reference



IMPACT

- Paediatric Bowel Care Pathway, Australia

Urinary Tract Infection



Case

- Neonate – 15% weight loss @ 18 days of age

Urinary tract infection (UTI) – Historical Changes in emphasis

- Incidence of around 5% across populations.
- Past Practice was to look for vesico-ureteric reflux (VUR) and give antibiotic prophylaxis to prevent further infection and damage
- Renal abnormalities are now known to usually be congenital , not acquired.
- UTI may be a marker for underlying renal and urological structural abnormality but is seldom the cause.
- In older children UTI is often a marker for bladder &/or bowel dysfunction.

Current focus-NICE guideline in 2007/, AAP guidelines in 2011



- a. Make a correct diagnosis
- b. Provide appropriate treatment
- c. Target investigations to a selected group of children.– reduce investigations
- d. do not support the routine use of prophylaxis
- e. reduce invasive imaging of children after their first febrile UTI (esp reducing the use of micturating cystourethrogram, MCU).

UTI - presentation



Non specific symptoms (usually very young)

- fever, irritability
- poor feeding
- vomiting and diarrhoea
- weight loss

Specific symptoms (usually older children)

- smelly urine, dysuria
- abdominal pain , loin or suprapubic pain
- fever

Other factors



Examination is often normal apart from a fever.

Some children may look well while others may appear very unwell.

Background of antenatal ultrasound renal dilatation is not uncommon

Associated features include constipation

? A reliable specimen - 1



Bag Urines

- Can exclude a UTI but can't accurately diagnose – up to 85% false positive rate.
- If +ve for WBC or nitrates need a clean catch , catheter urine or suprapubic aspirate.
- Children who can void on request (usually >3yr) can perform an MSU.
- Bag urine should NOT be sent to the laboratory for culture - screening test only.

? A reliable specimen - 2



Clean Catch Urines

- Worth trying before performing a catheter urine (depending on urgency).
- Place clean nappy on the child then feed.
- Wait 30 minutes
- Have sterile open urine collecting pot ready to collect sample
- Undo nappy, clean perineum with sterile water, palpate abdomen suprapubically and if needed tap the symphysis pubis. A child will frequently produce a urine specimen
- If a successful clean catch urine is obtained then if dipstick +ve treat for UTI while awaiting culture .
- If unsuccessful then **catheter urine or supra pubic aspirate** is needed.

Urine Testing



Dipstick Urine

- Can detect urinary protein, blood, nitrites (produced by bacterial reduction of urinary nitrate), and leucocyte esterase (an enzyme present in white blood cells)
- Screening test only. If UTI is suspected, a specimen should be sent for microscopy and culture.

Diagnostic Difficulty



BUT

- Blood and protein are unreliable markers of UTI
- Not all organisms produce nitrites and nitrites take time to develop in urine - poor sensitivity test.
- Not all patients with UTI have pyuria, especially the very young & neutropenic patients.
- Leucocyte esterase can only be detected with relatively high WBC counts in urine - low sensitivity.
- Leucocytes from local sources (vagina, foreskin) may contaminate urine.
- Leucocytes appear in the urine in many other febrile illnesses eg URTI, pneumonia, meningitis etc.

Positive Culture



- A pure growth of usual Bacteria $> 10^8$ CFU/litre indicates infection.
- A pure growth $> 10^5$ may indicate early infection and requires a repeat specimen

Rx Antibiotics – Check sensitivities and adjust therapy in 24 to 48 hours

1. Amoxicillin + Clavulanate - 10mg/kg/dose of amoxicillin component, three times daily

Issues – Penicillin Allergy ,Palatability,Diarrhoea

2. Cotrimoxazole - 4mg/kg/dose of Trimethoprim component (0.5ml/kg/dose of Cotrimoxazole suspension) ,twice daily

Issues – Allergy ,Small risk of blood dyscrasia

3. Cefaclor - 10mg/kg/dose ,three times daily for

Issues – Allergy ,serum sickness ,resistance, candida

DURATION 10 days total if < 2years of age, 7 days if > 2years

Treatment options for prophylaxis



In order of preference:-

- Cotrimoxazole – 2mg/kg of trimethoprim (0.25ml/kg of cotrimoxazole mixture) at night to a max dose of 10ml or 480mg.
- Cefaclor – 10-15mg/kg at night. Max 250-500mg/dose
- Nitrofurantoin 1- 2 mg/kg at night

Routine prophylaxis is no longer recommended.
First UTI < 2 years plus ? older child with recurrent UTI - Rx prophylaxis while awaiting US

consult with local paediatric team:



- Child under 6 months of age
- Child with known renal tract abnormalities
- Any child who looks severely unwell and needing full septic work up, intravenous antibiotics

Atypical UTI



- UTI associated with sepsis or bacteraemia
- Concern regarding obstructive uropathy
- Failure to respond to antibiotics within 48 hours
- Associated impaired renal function
- Infection with a non *E. coli* organism

Ultrasonography (US)



Inpatient/acute US is indicated for:

- Children with atypical UTI eg Hospitalized children not responding to treatment after 48 hours ,Infants admitted under 3- 6 months old.

Outpatient US within 6 weeks

- < 12 months old with first febrile UTI
- severe illness/ recurrent febrile UTI/ atypical history

Older children do not require an ultrasound post first UTI, but Rx US for recurrent UTI.

MCU



- No evidence of benefit from detecting VUR for majority of children
- MCU is no longer routine.

MCU should be considered for

- < 3 months with US abnormalities after first febrile UTI and /or atypical UTI (VUR or PUV)
- <6 months with recurrent febrile UTI and / or abnormal US
- Older children with intractable recurrent UTI

Follow up



Check urine sample 3 days after completing therapy to confirm the UTI has cleared.

The following children should be considered for follow up , referral to Paediatric Service:

- Children with abnormal imaging results
- Children admitted with UTI with atypical infection
- Children with recurrent UTI.

References



Starship Guidelines (Nov 2012) cited 1 May 2013 Starship Children's Health Clinical Guideline for UTI

Royal Children's Hospital Melbourne , Clinical Guidelines , UTI

Nice Guidelines (2007) cited 1 May 2013 Urinary tract infection in children: diagnosis, treatment and long-term management. NICE clinical guideline 54 Developed by the National Collaborating Centre for Women's and Children's Health

Rotorua Sensitivities

2012 ANTIBIOTIC SUSCEPTIBILITY PROFILES



	<i>Staphylococcus aureus</i>	<i>Streptococcus pyogenes</i> (Gp A Haemolytic Strep.)	<i>Streptococcus pneumoniae</i>	<i>Moraxella catarrhalis</i>	<i>Haemophilus influenzae</i>	<i>Pseudomonas aeruginosa</i>	URINE					
							<i>E. coli</i>	<i>Klebsiella</i> species	<i>Proteus mirabilis</i>	<i>Enterobacter / Serratia</i> spp.	<i>Enterococcus</i> species	<i>Staphylococcus saprophyticus</i>
Number of Isolates	1963		79		200	110	1178	164	78	42	109	131
PENICILLIN		S	89 _e	R	R	R						
FLUCLOXACILLIN	86	S		R	R	R						
AMOXYCILLIN		S	89 _d	R	78	R	52	R	85	R	96	V _f
AMOX / CLAV	86 _a	S	89 _d	S	94	R	92	91	97	R	96 _d	S _f
CEFACLOR	86 _a	S		S		R	98	93	93	R	R	S _f
COTRIMOXAZOLE				S	70	R	86 _g	79 _g	79 _g	83 _g	R	95 _g
ERYTHROMYCIN	84	S	78		R _e	R						
CLINDAMYCIN	84 _b	S	78 _b			R						
TETRACYCLINE			80	S	99	R						
GENTAMICIN						98	S	S	S	S		
CIPROFLOXACIN						98	93 _h	88 _h	100	91		
NITROFURANTOIN						R	100	81	R	42	94	100
TRIMETHOPRIM						R	86	79	79	83	R	95

The percentage of organisms susceptible to an antibiotic is recorded (with the sample size in the first column of the table).
(e.g. *Staphylococcus aureus* vs. flucloxacillin 86% susceptible, n=1963)

S = Not specifically tested, but known to be ordinarily susceptible. R = Organism resistant or antibiotic inappropriate.

V = Variable susceptibility.