

CONSTIPATION

BACKGROUND

- Chronic constipation with fecal incontinence is commonly seen by general practitioners
- It affects 4% of preschool children and 2% of school children
- Male:female ratio of 3:1
- Stool softeners are often required for up to 12 months and are safe
- Rectal therapies are strongly discouraged
- Pitfalls of treatment include inadequate clear out, early cessation of medication and poor compliance

DEFINITIONS

Chronic constipation

Two or more of the following in the past 8 weeks

- ✓ < 3 bowel movements per week
- ✓ > 1 episode of fecal incontinence per week
- ✓ Passing of stool that obstructs the toilet
- ✓ Retentive posturing with withholding behaviours
- ✓ Pain on defecation

Fecal Incontinence

- The passage of stool in an inappropriate place

REFERENCES

- Paediatric Care Online, RCPCH
- [Bristol Stool Form Scale](#)
- NICE Guideline CG99 May 2010: Constipation in children and young people
- The Paris Consensus J Pediatr Gastroenterol Nutr 2005; 40(3): 273-5
- CHG constipation guideline

HISTORY

- Dietary history
- Weight loss / growth
- Family history
- Frequency of defecation
- Consistency of stool
- Soiling or incontinence
- Bleeding per rectum
- Distension / Vomiting
- Urinary tract infections
- Treatments tried
- Effects on child and family

EXAMINATIONS

- Centiles
- Palpate abdomen for masses
- Examine back and spine for spina bifida
- Ankle jerks
- Inspect perianal area for anal fissure, tags, tears
- Rectal Exam not indicated

INVESTIGATIONS

- Urinalysis if symptoms suggestive of UTI
- Serology screening for coeliac may be indicated
- Plain Film Abdoment, Barium enema / TFTs/Ca²⁺ not usually recommended

TREATMENT

- Ensure a healthy, balanced diet and adequate fluid intake
- Avoid excess milk (limit to <600ml per day)
- Post-meal sits for 5-10 minutes
- Refer to community dietetic service if dietary assessment and advice are needed
- Movicol as first line therapy (see approach)
- Stimulants or lactulose can be added
- Maintenance treatment with Movicol to achieve soft daily stools with "toothpaste consistency"

TAKE HOME MESSAGES

- Constipation can and should be managed in primary care
- Movicol is the preferred medication and can safely prescribed for prolonged periods
- Very few require investigation or referral

CONSIDER

HIRSCHSPRUNGS IF

- Delayed passage of meconium (> 48 hrs)
- Symptoms persistent and from birth
- Stools never bulky
- Overflow is absent
- No satisfactory response to treatment

GENERAL PAEDIATRICS REFERRAL

- Faltering Growth
- Indolent constipation from birth
- Abdominal distension / vomiting
- Spinal abnormalities
- Abnormal neuromuscular signs
- Failure to respond to appropriate treatment

GASTROENTEROLOGY REFERRAL

- Features of inflammatory bowel disease (perianal abnormalities such as large skin tags anal fissures)
- Persistent blood in stool
- Faltering Growth / Marked Weight Loss

TREATMENT APPROACH

- PEG 3350 Movicol is first line
- Disimpaction**
- Increased dose used to achieve disimpaction. Up to 8 sachets per day (0-4yrs) or 12 sachets per day (5-11yrs)
- OR**
- Bisacodyl 1 tablet (1-5yrs) or 2 tablets (>5yrs) for 3 days repeat after 2 weeks. Or / picophosphate liquid
- Followed by maintenance**
- 1 -2 sachets of Movicol Paediatric Plain daily
- OR**
- Lactulose 5mls bd if < 1 year or with swallowing difficulties

BOWEL TRAINING

- Regular sits for 5-10 mins after meals
- Comfortable seating (foot stool, seat size)
- Star chart reward system (up to 8 years)

URINARY TRACT INFECTION

BACKGROUND

- Approximately 8% of girls and 2% of boys will have a symptomatic UTI in childhood
- Commoner in uncircumcised males
- E.coli is the causative organism in 90%
- Accurate diagnosis via urine culture is essential
- 30% of children with UTI have vesicoureteric reflux

PREDISPOSING FACTORS

- Congenital structural abnormalities
- Incomplete bladder voiding or infrequent voiding
- Constipation

OBTAINING URINE

- Clean catch is the best method
- High contamination of bag specimens

PREVENTING RECURRENCE

- Address dysfunctional voiding and constipation
- Encourage adequate fluid intake
- Encourage regular voiding and complete bladder emptying
- Recommend good perineal hygiene

DEFINITIONS

Recurrent UTI

- Based on 2 separate episodes at which urine culture demonstrates **pure growth** of a single organism

RED FLAGS

- Recurrent infections, especially in males with upper tract symptoms / signs (loin pain, vomiting)
- Atypical organisms
- Not better after 48 hours antibiotics
- History of dribbling incontinence
- Differentiate frequency from polyuria
- Gross haematuria / abdominal mass / stones
- Strong family history
- Persistent hypertension & haematuria

REFERENCE

National guideline paediatric urinary tract infection

HISTORY

- Infants
 - ✓ Fever
 - ✓ Irritability
 - ✓ Lethargy
 - ✓ Poor feeding
 - ✓ Vomiting
- Children
 - ✓ Abdominal pain
 - ✓ Dysuria
 - ✓ Urgency & frequency
 - ✓ Reluctance to void
- Check for history of constipation

EXAMINATIONS

- Often normal
- Centiles & BP
- Examine Lower back
- Check for renal angle tenderness & renal masses

INVESTIGATIONS

- Urinalysis
- Urine microscopy, culture and sensitivity

Renal ultrasound

- Performed during acute infection if admitted
- 4-6 months after first UTI in children 0 – 2 years
- Recurrent infections in children > 2 years
- Boys > 2 years with significant pyuria, pure growth and no evidence of balanitis.

MCUG

- Generally not indicated in first UTI
- May be indicated based on risk factors

DMSA

- DMSA if abnormal renal US

EMERGENCY

DEPARTMENT REFERRAL

- Suspected UTI in infants < 6 months
- Always consider sepsis
- Suspected UTI in children 6 months – 16 years who are systemically unwell with symptoms of fever, rigor, tachycardia, vomiting or dehydration

GENERAL PAEDIATRICS REFERRAL

- Red flags
- Recurrent UTI

NEPHROLOGY REFERRAL

- Raised creatinine or abnormal imaging suggestive of scarring / kidney damage

UROLOGY REFERRAL

- Suspected stones / abnormal imaging suggestive of obstruction / palpable bladder or abdominal mass

TREATMENT APPROACH IN PRIMARY CARE

Children 6 months 16 years and systemically well

- Upper UTI : Oral Cefalexin
- Lower UTI: Oral Trimethoprim OR Nitrofurantoin OR Cefalexin

Medication management guidance as of October 2017, refer to Formulary App Our Lady's Children's Hospital, Crumlin for most up to date information

TAKE HOME MESSAGES

- All infants < 6 months should be referred to ED if acute UTI suspected
- Clean catch is the best collection method
- Renal Ultrasound not required in first UTI children > 2 years
- Early recognition and prompt treatment of UTI in children is the best way to prevent renal damage.

NOCTURNAL ENURESIS

BACKGROUND

- Nocturnal enuresis is the involuntary voiding of urine at night at the age when the majority of children have achieved continence
- Affects 15% of 5 year olds and 5% of 10 year olds
- Improves with age
- Greatly affects self esteem
- Children should be informed bed wetting is not their fault

PREDISPOSING FACTORS

- Family history
- Sleep arousal issues
- Polyuria at night
- Constipation
- Obstructive sleep apnoea

EVIDENCE BASE

- Rewarding behaviours such as reducing fluid intake at night and alarms have long-term benefits
- Desmopressin has proven short term benefit
- 50-75% respond to treatment
- Night-time lifting of child to void has limited effectiveness
- Bladder training exercises do not reduce wetting frequency

REFERENCES

- NICE guideline 111 October 2010: the management of bedwetting in children and young adults

HISTORY

- Pattern of enuresis
 - ✓ Frequency
 - ✓ Time of night
 - ✓ Trigger factors
 - ✓ Ever had a dry night?
 - ✓ Acute onset – consider UTI / Diabetes Mellitus
- Daytime urgency / incontinence
- Symptoms of UTI
- Constipation / soiling
- Fluid intake
- Sleep patterns

EXAMINATIONS

- Centiles & BP
- Palpate abdomen
- Examine back and spine
- Check ankle jerks
- Examine genital area

Investigations

- Dipstick urinalysis is not required in primary enuresis. Consider if red flags apparent. Further imaging or blood tests are not routinely recommended.

Treatment

- Ensure adequate fluid intake
- Avoid caffeine based drinks
- 5-8 years old: Reward system
- > 8 years old: Enuresis alarm +/- desmopressin

Take home messages

- Nocturnal enuresis is common and has an excellent prognosis
- Initial management with reward systems, motivation, reduced night-time fluids and diary keeping leads to improvement in most children
- Desmopressin can be administered at night
- Anticholinergics may be used if unresponsive to treatment and concurrent daytime symptoms
- Avoid tricyclics

Red flags

- Symptoms of diabetes mellitus (polyuria, polydipsia and weight loss)
- Recurrent UTI, poor urinary stream
- Hypertension
- Spinal abnormalities
- Abnormal neurological exam
- Abnormal genital area
- Palpable bladder post voiding

Daytime symptoms

- If daytime symptoms present, focus on these first and consider
 - ✓ Addition of oxybutynin
 - ✓ Renal / bladder US
 - ✓ Paediatric referral

Response to treatment

- If no response to treatment after 6 months consider referral to paediatrician, nurse led enuresis clinic, community continence advisor or Public Health Nurse (PHN)

GENERAL PAEDIATRICS REFERRAL

- Failure to respond to treatment after 6 months
- Red flags
- If suspected Type 1 diabetes consider endocrine referral

RECOMMENDED DAILY FLUID INTAKE

- **4-8 years**
 - ✓ 1000 – 1400ml
- **9-13 years**
 - ✓ 1200 – 2100ml (girls)
 - ✓ 1400 – 2300ml (boys)
- **14-18 years**
 - ✓ 1400 – 2500ml (girls)
 - ✓ 2100 – 3200ml (boys)

HEADACHE

BACKGROUND

- Most recurrent headaches of childhood are due to either migraine or tension headache
- 6% adolescents suffer from daily headaches
- 25% adolescents suffer from weekly headaches

DIFFERENTIALS

- Tension headache
- Migraine
- Cluster headache
- Space occupying lesions e.g. brain tumour
- Idiopathic intracranial hypertension
- Sinusitis
- Meningitis

TENSION HEADACHE

- Bilateral pressing or tightening pain
- Moderate severity, self-limiting, responds to simple analgesia
- Associated with stressful events e.g. bullying, family and life stressors

MIGRAINE

- Unilateral severe throbbing pain
- Can be bilateral in children
- Pallor, nausea, vomiting, photophobia
- 15% have migraine with aura
 - ✓ Transient focal neurological symptoms that resolve with onset of headache
 - ✓ Commonly visual or sensory
- Triggers include stress, sleep deprivation, missed meals (particularly breakfast) nuts, caffeine, chocolate, MSG, cheese

TAKE HOME MESSAGES

- Headaches are very common in adolescents
- Review after 4-6 weeks to examine pattern of headaches using diary
- Assess trigger factors
- Treatment should focus on lifestyle modifications and removal of triggers and simple analgesia

REFERENCES

- RCH Melbourne guideline
- www.bash.org.uk
- www.headsmart.org.uk
- Forum 2008; 25(9):61-63

HISTORY

- Description of headache:
 - ✓ Location
 - ✓ Duration
 - ✓ Radiation
 - ✓ Associated features
 - ✓ Aggravating / relieving factors
 - ✓ Precipitating factors
- Change in severity or frequency of headaches
- Change in academic function or personality
- School days missed
- Medications tried
- Family history

EXAMINATIONS

- Centiles
- Head circumference
- Measure BP
- Cranial nerve exam including extraocular movements, fundoscopy, visual acuity and visual field
- Full neurological exam and gait assessment

Investigations

- Headache diary is most powerful diagnostic tool incl. record of engagement in activities of daily living and encourage these to continue
- CT / MRI scans are indicated in specific circumstances
- Avoid ordering scans for parental reassurance only

Treatment

- Review 4-6 weeks after initial consultation with headache diary
- If tension headache explore home and school issues, simple analgesia
- If migraine
 - ✓ Avoid triggers
 - ✓ Consider pharmacological treatment
 - > 12 yrs Early simple analgesia, Sumatriptan
 - < 12 yrs Ibuprofen
- **Prophylaxis**
 - ✓ Propranolol if no evidence of asthma

RED FLAGS

- Age < 3 years
- Presence of VP shunt
- Nocturnal or early morning headaches with vomiting
- Poor balance
- Seizures
- New visual disturbance (acute squint, deteriorating vision)
- New neurological disturbance (loss of balance / co-ordination problems / head tilt or gait abnormalities)
- Occipital headache
- Hypertension
- Focal neurology

Indications for neuroimaging

- Red flags signs or symptoms
- Change in personality
- Frequent or persistent vomiting
- Crescendo pattern
- Signs of raised ICP
- Focal / generalised seizures

EMERGENCY DEPARTMENT REFERRAL

- Acute headache with fever
- Headache with abnormal neurological examination or other red flags

GENERAL PAEDIATRICS REFERRAL

- Headache not responding to appropriate treatment
- Migraine if poor response to simple analgesia, consider prophylaxis. If ongoing difficulty refer for medication guidance and MDT input.
- Aim to reduce frequency to < 3 / month and decrease disability
- Consider imaging prior to referral if increased frequency or severity

FIRST SEIZURE

BACKGROUND

- Epilepsy affects 1 in 200 children
- Diagnosis is largely based on history
- A clear description of the episode is key
- Camera / mobile phone videos by parents enhance our ability to make an accurate diagnosis

DIFFERENTIALS

- Benign neonatal sleep myoclonus
- Shuddering
- Febrile seizures
- Reflect anoxic seizures
- Breath-holding
- Night terrors
- Vasovagal syncope
- Migraine
- Non Epileptic Events
- Long QT syndrome

FEBRILE SEIZURES

- Affects 3% of children aged 6 months – 6 years
- Seizure during an acute febrile illness ($> 38.5^{\circ}\text{C}$).
- There should be no signs of CNS infection
- No prior seizure events
- Most are simple (generalised tonic-clonic, last < 15 minutes, do not recur within same illness)
- Increased risk of recurrence if
 - ✓ First seizure before 15 months
 - ✓ Complex first seizure
 - ✓ Family history
- Parental education important
- Buccal midazolam can be used at onset if history of prolonged febrile seizures

REFERENCES

- NICE Guidelines (CG137) January 2012: The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care

HISTORY

- **Setting**
 - ✓ What was child doing?
 - ✓ Where was the child?
 - ✓ Presence of a prodrome
 - ✓ Was the child asleep or awake?
- **Sequence of events**
 - ✓ Did it interrupt an activity
 - ✓ Limb movement
 - ✓ Stiffening
 - ✓ Eye rolling / deviation
 - ✓ Incontinence
 - ✓ Tongue biting
 - ✓ Colour change
 - ✓ Level of consciousness
 - ✓ Duration
 - ✓ Could it be interrupted
- **Sequelae**
 - ✓ How long to full recovery
 - ✓ Chest pain / palpitations
 - ✓ Developmental concerns
 - ✓ Difficulties at school
 - ✓ Family history

EXAMINATIONS

- Centiles
- Head circumference (if < 2 years)
- Measure BP & vital signs
- Full neurological exam including fundoscopy
- Skin examination for neurocutaneous stigmata
- Developmental exam

INVESTIGATIONS

Consider:

- Blood sugar
- 12-lead ECG (calculate QTc)
- EEG (If recurrent)

TREATMENT

- Antiepileptic medication is usually started after the second unprovoked seizure (Paediatrician directed)

TAKE HOME MESSAGES

- The history of an episode is key to diagnosis
- Misdiagnosis is common
- Be aware of differentials
- Consider ECG to rule out prolonged QT and WPW

EMERGENCY DEPARTMENT REFERRAL

- Child presents actively seizing (cause and duration unknown)
- Known cause warranting more urgent treatment
 - ✓ Meningitis
 - ✓ Hypoxic injury
 - ✓ Trauma
 - ✓ Underlying cardio-respiratory compromise

GENERAL PAEDIATRICS REFERRAL

- First afebrile seizure need to be assessed by a paediatrician

PAEDIATRIC NEUROLOGY REFERRAL

- Recurrent seizures
- Seizures and developmental delay
- More than 1 medication required for seizure control
- Seizures with encephalopathy (behaviour or functional change).

INDICATIONS FOR EEG

- To support a diagnosis of epilepsy when the clinical history is suggestive of an epileptic event
- Usually performed after the second epileptic seizure
- May help to determine recurrence risk, make a syndromic diagnosis and identify precipitating factors
- EEG should NOT be performed to exclude a diagnosis of epilepsy when the clinical history suggests a non-epileptic events

INDICATIONS FOR MRI

- Neonatal or infant onset epilepsy
- Focal onset to seizure
- Refractory epilepsy
- Abnormal or focal neurological exam

SYNCOPE

BACKGROUND

- Syncope is a transient sudden loss of consciousness and postural tone
- Syncope is common with up to 35% of children experiencing at least one episode
- Differential for syncope is broad and careful history taking is paramount
- Two causes account for almost 80% of all cases of benign syncope
 - ✓ Vasovagal syncope
 - ✓ Orthostatic hypotension

DIFFERENTIALS

- Behavioural causes (breath holding, hyperventilation, non-organic syncope)
- Cardiac causes
- Neurological conditions
- Metabolic causes
- Drug induced syncope (diuretics, vasodilators)

Vasovagal Syncope

- Commonest cause of syncope
- More likely in morning
- Prolonged standing at any time
- Sight of blood / needles
- Clear typical prodrome preceding event
- Prodrome of nausea
- Family history
- Frequency (several times in a week)
- Associated postural symptoms on other occasions

REFERENCES

- CHG syncope guideline
- RCH Melbourne Syncope guideline
- Pediatr Neurol 2016; 55: 6-13: The Evaluation and Management of Pediatric Syncope

HISTORY

- **Prior to event**
 - ✓ Activity at the time
 - ✓ Time of day
 - ✓ Position
 - ✓ Trigger
- **During to event**
 - ✓ Length of event
 - ✓ Abnormal movement
 - ✓ Associated cardiac symptoms – shortness of breath, palpitations, chest pain, incontinence
 - ✓ Other associated symptoms – nausea, lightheadedness, blurred vision, feelings of pre-syncope
- **After the event**
 - ✓ Level of alertness
 - ✓ Length of time to recovery
 - ✓ Reappearance of symptoms on standing up
- **Medical history**
- **Family history**

EXAMINATIONS

- BP and HR
- Cardiac & neurological exam
- Vitals SpO2

INVESTIGATIONS

- Glucose level – finger prick testing
- ECG
- BHCG - Post menstrual girls

TREATMENT

- For vasovagal or orthostatic hypotension
 - ✓ Reassurance & safety netting
 - ✓ Education on avoidance and triggers
 - ✓ Recognise prodromal symptoms
 - ✓ Adequate fluid and salt intake
 - ✓ Regular exercise

CARDIAC RED FLAGS

- Event triggers, fright, auditory stimulus, extreme emotional stress
- Syncope during exertion
- Palpitations or chest pain
- Family history of early cardiac death, known arrhythmia or familial cardiomyopathy
- History of congenital heart disease
- On waking from sleep or coming on in lying position
- New unexplained nocturnal enuresis

GENERAL PAEDIATRICS REFERRAL

- Recurrent episodes
- Recumbent episode
- Exertional syncope

PAEDIATRIC CARDIOLOGY REFERRAL

- Transient LOC with red flags in history, abnormal cardiac exam or abnormal ECG

PAEDIATRIC NEUROLOGY REFERRAL

- Preceded by migranous headache, postictal state, incontinence or prolonged LOC

ASTHMA

BACKGROUND

- Asthma affects 15% of children
- Asthma is a clinical phenotype as opposed to a disease
- The diagnosis of asthma is a clinical one
- Preschool children usually viral triggered disease – improves with age
- Atopic asthma comes on at older age and rarely goes away completely

DIAGNOSIS

- Ongoing history of recurrent episodes of a similar symptom complex.
- Reproducible beneficial symptomatic response to bronchodilators and systemic steroids.
- Significant improvement with 3-6 months of ICS.
- PFTs and IgE/SPT may help in the diagnosis

GENERAL ASTHMA MANAGEMENT

- Acute asthma plan
- Education on correct inhaler technique and chamber device
- Pharmacological: Stepwise approach as per BTS Guidelines
- Non-pharmacological: allergen reduction, smoking cessation, weight reduction in overweight / obese
- Monitoring control: Clinical review on scheduled basis when well

REFERENCES

- GINA Guidelines 2014
- BTS / SIGN asthma guideline 2014
- Asthma society of Ireland website
- Asthma Control in General Practice, 2013, ICGP

HISTORY

- Cough (typically dry, irritative, worse at night)
- Wheeze, chest tightness
- NB clinical response to bronchodilators when given – same every time (15mins)
- Improvement within 24h to PO steroids
- Younger children typically triggered by viruses. Winter > Summer
- Older children exercise and summer > winter

EXAMINATION

- Centiles
- Nasal airflow, rhinitis, polyps
- Skin ?eczema
- Pharynx ? Risk factors for OSA
- Chest shape
- Cardiac exam

INVESTIGATIONS

- IgE, specific IgEs and SPT help to determine if child is atopic or not
- Spirometry in selected cases
- PEFr of dubious value

STEPWISE APPROACH

- **Step 1**
 - ✓ Inhaled short-acting β 2 agonists (B2A) as required
- **Step 2**
 - ✓ Add Inhaled corticosteroids
- **Step 3**
 - ✓ Inhaled long-acting B2A and ICS combination or
 - ✓ Add Leukotriene receptor antagonists (LRA) or
 - ✓ Increase ICS dose
 - ✓ If no response to LABA/ICS +/- LRA reconsider diagnosis, compliance, technique
- **Step 4 & above**
 - ✓ Refer for specialist care

Refer to Formulary App Our Lady's Children's Hospital, Crumlin for most up to date guidance

EMERGENCY

DEPARTMENT REFERRAL

- Features of severe or life-threatening asthma
- Acute asthma attack

GENERAL PAEDIATRICS REFERRAL

- Diagnostic uncertainty
- Poorly controlled asthma
- Failure to respond to Step 2 therapy
- Faltering growth
- Asthma & food allergy

RESPIRATORY REFERRAL

- Poor response to augmented asthma treatment (step 3 or more)
- Persistent chest x-ray changes
- Symptoms from birth or perinatal lung disease
- Family history of unusual chest disease
- Persistent wet cough

COMPLETE CONTROL OF ASTHMA

- No daytime symptoms
- No awakening due to asthma
- No need for rescue medications
- No asthma attacks
- No limitations on activity including exercise
- GOAL is a normal quality of life using as little medication as necessary

TAKEHOME MESSAGES

- Education about background control is vital
- Age-appropriate inhalers and correct technique important
- Written asthma action plan(<https://www.asthma.ie/about-asthma/learn-about-asthma/managing-your-asthma/asthma-action-plan>)

ATOPIC ECZEMA

BACKGROUND

- Affects 15% of children
- 90% present before 5 years
- 60% present before 1 year
- Often improves during childhood however some cases may persist
- Associated with development of other atopic disease

DIAGNOSTIC CRITERIA

Itchy skin plus 3 or more of the following

- ✓ Flexural dermatitis involving skin creases (cheeks or extensor areas in children < 18 months)
- ✓ Dry skin in the past year
- ✓ History of asthma or allergic rhinitis (family history if child < 4 years)
- ✓ Onset of signs and symptoms before age 2

TRIGGER FACTORS

- Irritants such as soap and detergents
- Contact or inhaled allergens
- Woollen clothing
- Food allergens

BACTERIAL INFECTION

- Mainly *S. aureus* or Group A *Streptococcus*
- Rapidly worsening eczema
- Failure to respond to topical steroids
- Weeping or crusting lesions
- Systemic signs and symptoms
- Treat with topical or oral antibiotics (flucloxacillin)

ECZEMA HERPETICUM

- Rapidly worsening eczema
- Failure to respond to topical steroids
- Multiple punched-out crusted superficial erosions
- Treat immediately with systemic acyclovir and refer urgently to a dermatologist or local paediatric hospital

HISTORY

- Age of onset
- Pattern
- Severity
- Possible triggers
- Dietary history
- Sleep disturbance
- Family history of atopy

EXAMINATIONS

- Crusted erythematous patches on flexor surfaces (face & extensor surfaces < 18 months of age)
- Excoriation
- Lichenification
- Secondary infection

INVESTIGATIONS

- Skin swabs if recurrent infection or suspected streptococcal infection
- Consider skin prick testing or specific IgE if strong suspicion of food allergy in moderate to severe eczema

TREATMENT

- Use emollients generously 3-4 times / day and add to bath water
- Use Milton baths for suspected infection
- Avoid irritants (heat, soap, woollen clothing, scratching, sand)
- Topical steroids of lowest effective potency applied once a day
- Recognise and treat infections

TAKE HOME MESSAGES

- Liberal use of emollients
- Avoid known triggers
- Sparing topical steroids
- Wet dressing / paste bandages are second line
- In flare up think infection
- Have a written care plan

REFERENCES

- NICE Guidelines CG57 Dec 2007: *Atopic eczema in children*
- SIGN guideline 125 2011: *management of atopic eczema in primary care*

DERMATOLOGY REFERRAL

- Emergency referral if clinical suspicion of eczema herpeticum to ED
- Routine referral if
- ✓ Diagnostic uncertainty
- ✓ Severe eczema, poorly controlled by topical treatments
- ✓ Recurrent infections
- ✓ Significant social or psychological disturbance

GENERAL PAEDIATRICS REFERRAL

- Eczema co-morbid with suspected food allergy / asthma

TOPICAL STEROIDS

- Applied to active eczema including areas of broken skin
- Potency should be tailored to severity of eczema
- Only mild to moderate potency on face
- Apply sparingly on the affected area so that the skin glistens

TOPICAL CALCINEURIN INHIBITORS

- Topical tacrolimus should be considered in children > 2 years old with moderate to severe eczema not controlled by topical steroids

DIETARY EXCLUSION

- Food exclusion is not recommended in the management of eczema as it risks loss of tolerance and development of Type 1 food allergy
- Infants with eczema should have allergens such as egg and peanut introduced into their diets as soon as they wean to solids
- If severe eczema and food allergy refer to allergy specialist

FALTERING GROWTH IN INFANCY

BACKGROUND

Faltering growth should be considered in the following instances:

- a fall across 1 or more weight centile spaces, if birthweight was below the 9th centile
- a fall across 2 or more weight centile spaces, if birthweight was between the 9th and 91st centiles
- a fall across 3 or more weight centile spaces, if birthweight was above the 91st centile
- when current weight is below the 2nd centile for age, whatever the birthweight.

Weight loss in the early days of life

- Some weight loss in the first days after birth is normal
- This weight loss usually stops after about 3 or 4 days of life
- Most infants have returned to their birth weight by 3 weeks of age.
- If infants lose > 10% of their birth weight a clinical assessment is required
- Nutrition is the main driver for child's growth and this should be the main focus of initial assessment
- Evaluation for other causes and psychosocial vulnerabilities are also important

GROWTH CHARTS

- Adequacy of growth is best evaluated by plotting serial measurements on a centile weight chart.
- In babies born from 32 – 36 weeks, correct for prematurity until 12 months and in babies born <32 weeks, correct for prematurity until 24 months
- Birth weight is not necessarily representative of the genetic potential for future growth.

HISTORY

- Birth history including birth weight and gestation
- Detailed feeding and diet history
- Vomiting
- Pattern & frequency of stools
- Specific weight gain
- Detailed medical history
- Developmental history
- Excessive exercise
- Mental health
- Family history
- Social history

EXAMINATION

- Plot weight and length/height measurements on appropriate centile charts
- Appearance – absence of muscle bulk, lethargic, irritable
- Signs of abuse / neglect
- Parent / child interactions
- Signs of respiratory or cardiac disease
- Hepatomegaly / splenomegaly or palpable mass on abdominal examination
- Focal neurological signs / cranial nerve abnormalities / generalised weakness / spasticity
- Cleft palate
- Dysmorphic features

INVESTIGATIONS

For an otherwise healthy and normally developing child with no suggestive features no investigations are necessary. Simple first line investigations may include:

- Full blood count
- Urea, electrolytes, and creatinine
- Coeliac screen
- Thyroid function tests
- Blood glucose
- Urinalysis and urine culture
- Stool microscopy & culture

TREATMENT

- Breast feeding education and support
- Full dietetic assessment and intervention
- Management of GORD

RED FLAG SIGNS & SYMPTOMS

- Signs of abuse or neglect
- Signs of poor carer understanding, family vulnerability or poor attachment
- Parental mental health issues
- Already / previously case managed by Tusla
- Excessive fluid loss (vomiting, diarrhoea, polyuria, excessive sweating)
- Weight crossing two centile lines on growth chart
- Signs of chronic disease

EMERGENCY DEPARTMENT REFERRAL

- Signs of significant illness or dehydration
- Acute child protection concerns

GENERAL PAEDIATRICS REFERRAL

- Red flags signs or symptoms
- Poor weight gain persists despite adequate intervention

WEIGH

- Infants < 3 months may require weekly monitoring
- Do not weigh more frequently than weekly

AVERAGE GROWTH

- **0-3 months:** 150 - 240g/week
- **3-6 months:** 100 - 150g/week
- **6-12 months:** 70-90g / week

TAKE HOME MESSAGES

In the majority of cases faltering growth is due to insufficient calorie intake with no serious underlying medical or social cause, and is likely to respond to dietary and feeding management.

REFERENCES

- Paediatric Care Online, RCPCH
- RCH Melbourne guideline poor growth
- NICE guideline [NG75] 2017

RECURRENT ABDOMINAL PAIN

BACKGROUND

- Recurrent abdominal pain is common in primary school children and affects 10-15% of children
- Recurrent abdominal pain, which is commonly defined as three or more episodes of abdominal pain over at least 3 months duration that is severe enough to affect daily activities in a child over 3 years of age.
- The diagnostic approach to abdominal pain in children relies heavily on the history provided by the parent and child to direct a step-wise approach to investigation
- A symptom diary allows the child to play an active role in the diagnostic process

REFERENCES

- RCH Melbourne guideline (Acute Abdominal pain)
- Gieteling et al. Annals of Family Medicine. 2011;9(4):337-343.
- Wright NJ, Hammond PJ, Curry JJ. Arch Dis Child Educ Pract Ed 2013;98:32-39.
- ALAN M. LAKE, M.D., Am Fam Physician. 1999 Apr 1;59(7):1823-1830.

HISTORY

- Location (typical peri-umbilical) intensity, character and duration of pain, time of day or night pain occurs
- Appetite, diet, nausea, reflux, emesis
- Stool pattern, consistency, completeness of evacuation
- Weight loss, growth, pubertal delay
- Fever, rash
- Family history, travel
- Medications and nutritional interventions
- Interference with school, play, peer relations and family dynamics
- Social history

EXAMINATIONS

- Weight, height, pubertal stage
- Complete physical examination
- Common abdominal findings include palpable faecal mass
- Perianal findings may include tags if history of constipation

INVESTIGATIONS

- A prospective symptom diary incl. frequency of the pain, related events and response to intervention
- Urinalysis
- Bloods not routinely indicated
- Additional lab tests based on history and physical exam
- Ultrasound of abdomen and pelvis indicated when red flags present

TREATMENT

- Treat causes if present such as constipation, UTI or GORD
- Emphasise the importance of remaining in school, continuing activities and resumption of a normal diet
- Psychologic evaluation and management will be necessary if the degree of incapacity persists.

RED FLAGS

- Involuntary weight loss/faltering growth
- Chronic, severe diarrhoea or vomiting
- Gastrointestinal bleeding
- Persistent right upper quadrant or right lower quadrant (RLQ) abdominal pain
- Unexplained fever
- Family history of inflammatory bowel disease (IBD)
- Jaundice
- Urinary symptoms, back or flank pain
- Nocturnal symptoms

EMERGENCY DEPARTMENT REFERRAL

- Acute abdominal pain including suspected appendicitis, testicular torsion, ovarian cyst (torsion or rupture), volvulus, mesenteric adenitis or incarcerated hernia

GENERAL PAEDIATRICS REFERRAL

- Recurrent abdominal pain with red flags

GASTROENTEROLOGY REFERRAL

- Features of inflammatory bowel disease (weight loss, abdominal distension, perianal abnormalities such as large skin tags anal fissures)
- Persistent blood in stool

LYMPHADENOPATHY

BACKGROUND

- Lymphadenopathy is defined as any lymph node enlargement
- Not all lymphadenopathy is clinically significant
- Lymphadenopathy commonly occurs during and after viral infection. These "reactive" nodes are usually small, firm and non-tender and they may persist for weeks to months.
- **Acute bacterial adenitis** is characterised by larger nodes >10mm, which are tender and may be fluctuant. Most typically these are in the anterior part of the neck. There is often associated fever and warm, erythematous overlying skin.
- **Persistent enlargement** of lymph nodes (> 2 weeks) may also be caused by a number of other conditions such as atopic eczema, resolving infections and very rarely malignancy and rheumatological conditions

REFERENCES

- RCH Melbourne guideline
- Paediatric Clinical Guideline on Cervical Lymphadenopathy, AMNCH
- Paediatric Care Online, RCPCH

HISTORY

- Size & location of lymph nodes
- Onset
- Infectious exposures
- Foreign Travel
- TB contact (BCG status)
- Contact with animals
- Fever >5/7 + rash, cracked lips
- Ingestion of unpasteurised milk
- Weight loss
- Night Sweat
- Symptoms of localised infection
- Symptoms of systemic diseases
- Medications

EXAMINATIONS

- Examine the nodes, location, size
- Bilateral or unilateral
- Swelling, tenderness, firm to touch, mobile
- Localised or generalised
- Examination of surrounding skin for warmth, erythema, rash
- Oral/Dental Examination

INVESTIGATIONS

Acute Adenitis

- May require no investigations if non-tender and no red flags
- Needs review to ensure resolution

Persistent Adenitis (>2 weeks)

- Full blood count + blood film
- Serology (EBV, CMV, Toxo, HIV (at risk), Cat scratch)
- Chest x-ray +/- mantoux
- U/S of neck (CT on occasion)
- Antibiotics and review in 10 days. Involve ENT, Surgery as necessary.

TREATMENT

Management of acute adenitis

- **Well:** oral antibiotics for 10 days, with review in 48 hours.
 - ✓ Flucloxacillin
 - ✓ Severe penicillin hypersensitivity: Erythromycin or other macrolide
- **Neonates, unwell or failed oral Rx** – refer for IV antibiotics
Refer to CHG Antimicrobial guidelines on Formulary App Our Lady's Children's Hospital, Crumlin for most up to date information

RED FLAGS

- Weight loss
- Bone pain
- Drenching night sweats
- Indications of possible malignancy
 - Firm, non-mobile nodes
 - Non-tender nodes
 - Lymph nodes that are greater than 2 cm in size
 - Lymph nodes that are progressively enlarging
 - Involvement of axillary nodes in the absence of local infection or dermatitis
 - Involvement of supraclavicular nodes
 - Hepatomegaly / splenomegaly
 - Bruising on non-bony surfaces

EMERGENCY DEPARTMENT REFERRAL

- Unwell with fever and lymphadenopathy

GENERAL PAEDIATRICS REFERRAL

- Any red flags
- History and physical examination do not suggest an infectious cause
- Potentially infectious nodes have not responded to a course of antibiotics

TAKE HOME MESSAGES

- Enlargement of one or more lymph nodes < 1 cm in diameter, particularly in cervical, occipital, and inguinal regions, is a common finding in otherwise healthy children

OVERWEIGHT / OBESITY

BACKGROUND

- 25% of children in Ireland are overweight or obese
- Aetiology is multifactorial
- ✓ Genetic Predisposition
- ✓ Increased hunger
- ✓ Dietary habits – high fat fast foods, large portion sizes, sugar-containing soft drinks
- ✓ Lack of exercise
- BMI centiles should be used to diagnose obesity
- ✓ UK- WHO chart for children up to 4 years
- ✓ UK90 Growth Foundation Chart or the UK 2-18 charts for children > 4 years

DEFINITIONS

- Overweight = BMI > 91st centile
- Obesity = BMI > 98th centile

CONSEQUENCES OF CHILDHOOD OBESITY

- Obesity in adulthood
- Psychosocial issues
- Cardiovascular risk factors
- Increased BP
- Adverse lipid profiles
- Non-alcoholic fatty liver disease
- Hyperinsulinemia and risk for early onset Type 2 Diabetes Mellitus
- Musculoskeletal problems e.g. SUFE
- Breathing difficulties e.g. sleep apnoea

REFERENCES

- 2015. Policy Group on Obesity. RCPI
- The Childhood Obesity Surveillance Initiative (COSI) in the Republic of Ireland. 2017
- Weight Management Treatment algorithm for children (ICGP / HSE)
- Clinical Advisory Group

HISTORY

- Age of onset of overweight / obesity
- Family history of overweight and obesity and comorbidities.
- Dietary history – quantity & quality
- Eating disordered behaviour
- Exercise history
- Psychosocial distress such as low self-esteem, teasing and bullying
- Relevant environmental & social factors

EXAMINATIONS

- Height & weight centiles
- **BMI centile**
- BP
- Waist circumference
- Dysmorphic features

INVESTIGATIONS

- No investigations required in 95% of cases
- Children with a BMI > 91st centile need to be investigated for comorbidities – *fasting*
 - Blood glucose
 - Hba1c
 - Cholesterol
 - Triglycerides
 - Vitamin D
 - TFTs
 - LFTs

TREATMENT

- Family & patient support
- Motivational approach
- Supported community based behavioural change programme
- Encourage increased physical activity & a healthy diet
- Dietetic input

TAKEHOME MESSAGES

- This is a complex condition which occurs in people with a genetic predisposition & is triggered by our obesogenic environment
- Treatment is equally complex & challenging and currently relies on behavioural change
- The purpose of investigation is to assess the extent of comorbidities

COMMUNITY MDT WEIGHT MANAGEMENT PROGRAMME

- Overweight and obese children should have access to a community based behavioural change programme
- Refer to community dietitian if not available

GENERAL PAEDIATRIC REFERRAL

- BMI > **92nd centile** co-existing with short stature
- Children in whom behavioural management has failed
- Children in whom there is no improvement in comorbidities with lifestyle advice

LIFESTYLE ADVICE

- Give parent and child information on how to reduce daily calorie intake and reduce sedentary behaviour by
- ✓ Cutting out treats high in fat, sugar & salt
 - ✓ Aiming for 3 balanced meals / day & 2 healthy snacks
 - ✓ Reducing portion size if appropriate
 - ✓ Reduce screen time to < 2 hours / day
 - ✓ Increasing daily physical activity
 - ✓ For more advice see



- <https://www.safefood.eu/Healthy-Eating.aspx>
- <https://www.healthynh.com/5-2-1-0-healthy-nh.html>
- www.littlesteps.eu
- www.getirelandactive.ie