PEDIATRIC IN GENERAL PRACTICE

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OBJECTIVES

- Febrile child
- Asthma
- Febrile seizures
- Headaches in pediatrics
- COVID19 in Pediatrics
- URTI + AOM
- When to refer a child to the hospital

HOW DOES TEMPERATURE VARY AMONG DIFFERENT BODY SITES ?

AS a general guideline :

- Rectal **Standard**
- Oral 0.5 – 0.6 C lower
- Axillary 0.8– 1 C lower
- Tympanic 0.5 – 0.6 C lower

- In infants who are < 3 months

  a **Rectal tempreture** is the preferred method.
- The Oral route is typically not used until a child is 5-6 years of age.

WHAT IS THE PROPER WAY TO EVALUATE AND MANAGE FEBRILE ILLNESS IN NEONATE <28 DAYS?

- Patients < 1 month with fever (38 C) warrant urgent evaluation including :

➢ Blood , urine and CSF cultures .

- Because of higher rates of bacteremia and meningitis (including pathogens from the neonatal period, such as group B strepyococci) and greater difficulty in global assessment of wellness compared with infants > 28 days of age .

➢ Refere to the hospital for admission after giving appropriate dose of antipyretic medication

Ref: AAP Releases guidelines for febrile infants aug 2021. Powell EC, Mahajan PV, Roosevelt G, et al. Epidemiology of bacteremia in febrile infants aged 60 days and younger. Ann Emerg Med. 2018;71 (2):211-216.
Jain S, Cheng J, Alpern ER, et al. Management of febrile neonates in US pediatric emergency departments. Pediatrics. 2014;133(2):187-195.

WHAT ARE THE EVALUATION AND MANAGEMENT OF FEBRILE ILLNESS IN INFANTS > 28DAYS TO 90 DAYS?

- Up to 7% of febrile infants who are < 3 months have serious bacterial infections (SBIs) : bacteremia, meningitis, osteomyelitis, septic arthritis, UTI, or pneumonia.
- UTIs comprise the greatest percentage of bacterial infections.
- The incidence of bacterial meningitis and SBI due to S.pneumoniae has fallen; this is likely due in part to herd immunity secondary to vaccination of older infants.
- A urinalysis & urine culture are now the most important laboratory studies given the higher likelihoods of UTIs compared with other occult bacterial processes.
- Many centers also obtain a CBC & blood culture in this age group.
- Lumbar punctures (LPs) are commonly deferred in a smiling, well-appearing,febrile infant.

Reff : AAP Releases guidelines for febrile infants aug 2021. Dorney K, Bachur RG. Febrile infant update. Curr Opin pediatr. 2017;29(3):280-285.
Aronson PL, Thurm C, Alpern ER, et al. Variation in care of the febrile young infant < 90 days in US pediatric emergency departments. Pediatrics. 2014;134:667-677.

HOW SHOULD OLDER INFANTS AND TODDLERS (3 – 36 MONTHS OLD) WITH FEVER AND NO APPARENT SOURCE BE MANAGED?

- The rates of bacteremia & meningitis have fallen dramatically, particularly with the introduction of the conjugate pneumococcal vaccine.
- The most common cause of SBI in children with fever without a source in this age range is an occult UTI.
- Most pediatric infectious disease experts no longer recommend a CBC or blood culture or any laboratory tests (other than urinalysis & urine culture in certain settings) in the evaluation of a well-appearing febrile infant > 90 days who has received Hib & pneumococcal vaccines because of the low risk for bacteremia & meningitis.

Scarfone R, Murray A, Gala P, Balamuth F. Lumbar puncture for all febrile infants 29-56 days old: a retrospective cohort reassessment study. J pediatr. 2017; 187:200-205.

WHEN IS A CHEST RADIOGRAPH INDICATED FOR A FEBRILE YOUNG INFANT ?

- Respiratory symptoms or signs, including cough, tachypnea, irregular breathing, retractions, wheezing, or decreased breath sounds.
- Leukocytosis (>20,000/ml) in febrile (39 C) patients < 5 years increases the likelihood of an "occult pneumonia." In most cases, it is not possible to differentiate viral from bacterial pneumonias radiologically .

ASTHMA

When does asthma usually have its onset of symptoms?

- About 50% of childhood asthma develops before the age of 3 years , and nearly all has developed by the age of 7 years.

Which children with wheezing at an early age are likely to develop chronic asthma ?

- Most (80%) do not develop persistent wheezing after age 3 years. Risk factors for persistence include the following:
- +ve F/H of asthma (especially maternal)
- Increased IgE levels
- Atopic dermatitis
- Rhinitis not associated with colds
- Secondhand smoke exposure

American Academy of Allergy, Asthma and immunology. www.aaaai.org. Accessesd March 11, 2020

WHAT ARE OTHER POTENTIAL TRIGGERS FOR ASTHMA?

- Upper airway infections (rhinitis, sinusitis)
- Cold air
- Weather changes
- Exercise
- Environmental (pollutants, cigarette smoke)
- Irritants (strong odors, paint fumes, chlorine)
- Emotional extremes (stress, fear, crying, laughing)
- Medications (nonsteroidal anti-inflammatory drugs, aspirin, beta blockers)
- Foods, food additives
- Gastroesophageal reflux disease
- Hormonal (menstrual, premenstrual)

HOW IS THE SEVERITY OF AN ACUTE ASTHMA ATTACK ESTIMATED?

- Classifying Severity of Asthma Exacerbations in the Urgent or Emergency Care SettingAdapted from the National Asthma Education and Prevention Program: Expert panel report III: Guidelines for the diagnosis and management of asthma. Bethesda, MD: National Heart, Lung, and Blood Institute, 2007. (NIH publication no. 08-4051).

	Symptoms and Signs	Initial PEF (or FEV_1)	Clinical Course
Mild	Dyspnea only with activity tachypnea in young children)	PEF ≥ 70% predicted or best	Usually cared for at home Prompt relief with inhaled SABA Possible short course of oral systemic corticosteroids
Moderate	Dyspnea interferes with or activity	PEF 40%-69% predicted or best	• Usually requires office or ED visit • Relief from frequent inhaled SABA • Oral systemic corticosteroids; some symptoms last for 1-2 days after treatment is begun
Severe	Dyspnea at rest; interferes conversation	PEF < 40% predicted or best	• Usually requires ED visit and likely hospitalization • Partial relief from frequent inhaled SABA • Oral systemic corticosteroids; some symptoms last for > 3 days after treatment is begun • Adjunctive therapies are helpful
Life threatening	Too dyspneic to speak;	PEF < 25% predicted or best	1.Requires ED/hospitalization; possible ICU 2.Minimal or no relief from frequent inhaled SABA 3.Intravenous corticosteroids 4.Adjunctive therapies are helpful

WHAT IS THE FIRST-LINE PHARMACOLOGIC TREATMENT FOR PATIENTS WITH *PERSISTENT* ASTHMA?

- **Inhaled corticosteroids.**
- Daily administration significantly improves symptoms, reduces exacerbations, and allows healing of the chronic inflammatory changes that have taken place in the airways over time.
- Dosing and the use of adjunctive medications (e.g., long-acting inhaled beta-2 agonists, leukotriene-receptor antagonists) depend on frequency and severity of symptoms and exacerbations.

FEBRILE SEIZURES

- A convulsion caused by a fever (38 C) without evidence of CNS pathology or acute electrolyte imbalance that occurs in children between (6 months and 5 years) with a peak at the end of the second year of life.
- Children with a history of epilepsy who have an exacerbation of seizures with fever are excluded.
- Febrile seizures occur in 2 % to 5 % of children .
- There is often a positive family history of febrile convulsions
- The likelihood of recurrence increases with a younger age of onsent. Other risk factors for recurrence are lower temprature at the time of seizure and a family history of febrile seizures.
- Overall, the recurrence rate in the pediatric population is about 30%.

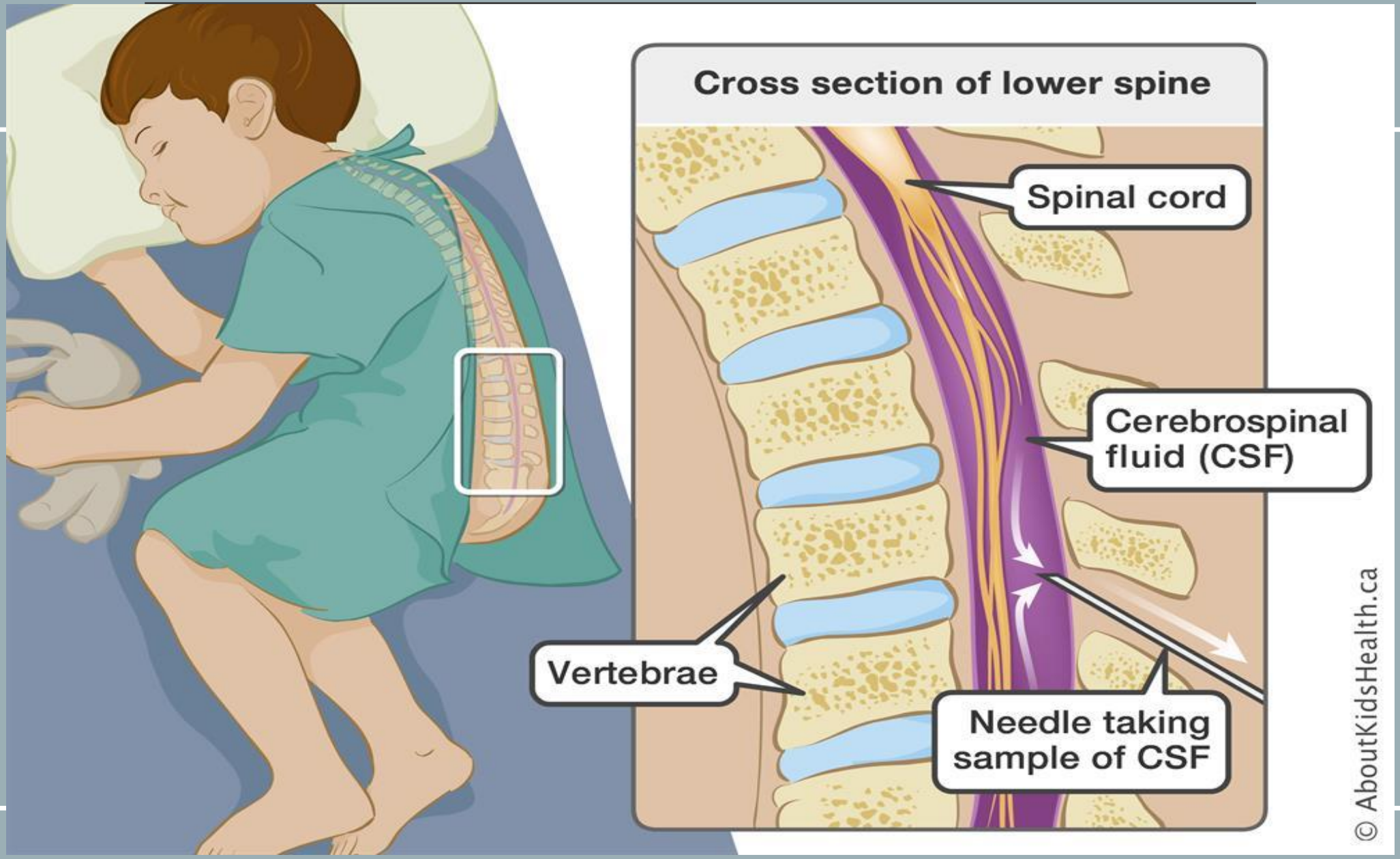
TYPES

Simple

- ✓ Brief < 15 minutes long
- ✓ One attack in 24 hours
- ✓ Generalized tonic clonic convulsion

Complex

- ✓ Extended in duration > 15 minutes
- ✓ Occuring more than once in 24 hours
- ✓ Focal seizures


Cross section of lower spine
Spinal cord
Cerebrospinal fluid (CSF)
Vertebrae
Needle taking sample of CSF
© AboutKidsHealth.ca

2 YEAR OLD CHILD WITH SEIZURE

(1)

Is the patient stable ?

Is the patient breathing ?

are the O2 saturations adequate ?

(2)

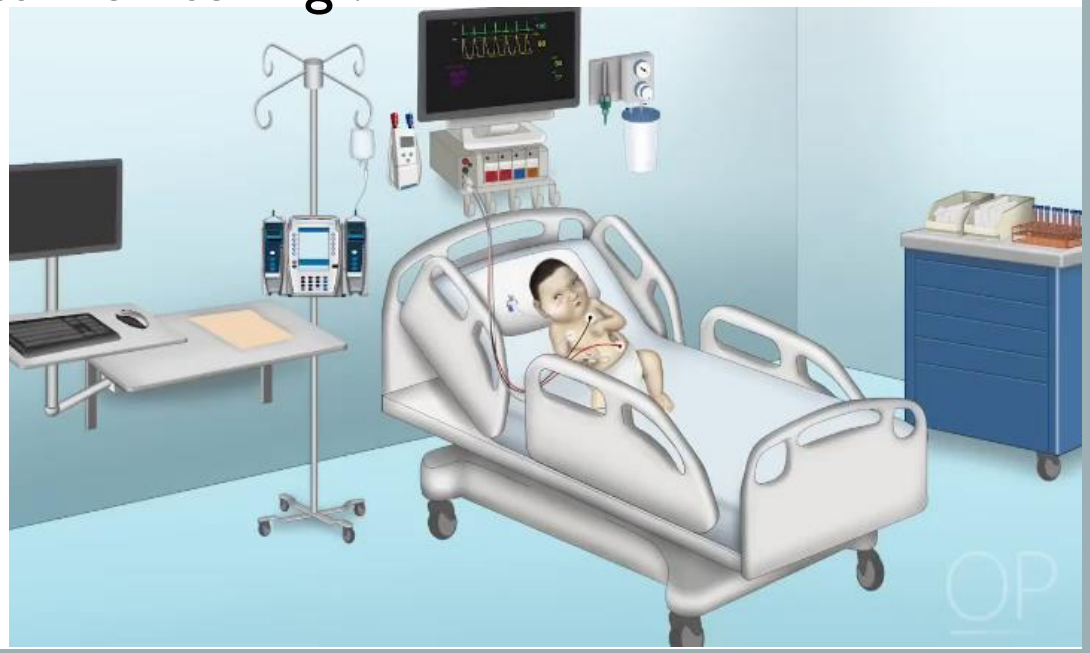
How long has the patient had these symptoms ?

WHILE YOU ARE IN THE RESUSCITATION ROOM

- ✓ Make sure that the patient connected to the monitor
- ✓ continuous vital signs & O2 sat Monitoring .

The Vital signs :

T	39 C
HR	180
B.P	110/70
RR	30
O2 sat	86 %



- Focus physical examination : the patient is not responsive to voice , his eyes deviated to RT side bilaterally and tachycardiac with regular rhythms with good A/E bil and good respiratory effort . CRT : less than 2 sec with good radial and dorsalis pedis pulses bil .
- he has Tonic clonic jerks of his body and extremities .

IT IS A SEIZURE BASED ON INITIAL EVALUATION

- **Changes in V/S :**

- Tachycardia
- Tachypnea or apnea
- Desaturations
- Abnormal rhythmic movements
- Change in mental status

INITIAL MANAGEMENT

- Airway
- Breathing
- Circulation
- IV access ?

- Quick History : No previous seizure hx , fever ? Any cough ?
- No new medications ! Or H/O Head trauma !

Management of Status Epilepticus

A AIRWAY **B** BREATHING **C** CIRCULATION **D** DEXTROSE
E ELECTROLYTE DISTURBANCE

1st Line

Vascular Access

YES

Lorazepam I.V. 0.1mg/Kg over 1-2 minutes (Max. 4mg)
Or
Midazolam I.V. 0.15mg/Kg (Max. 10mg)
Or
Diazepam I.V. 0.3mg/Kg (Max. 10mg)

NO

Midazolam I.M. 0.2mg/Kg
Or
Midazolam Buccal or Intranasal 0.3 – 0.5mg/Kg
Or
Diazepam P.R. 0.5mg/Kg (Max.10mg)

5 minute

Repeat the same step

5 minute

2nd Line

Inj. Phenytoin 20mg/Kg over 20 minutes.
Rate: 1mg/kg/mt (Max. 1gm)
N.B. If < 2 Years, consider Pyridoxine 100mg I.V.

5 minute

3rd Line

3rd Line

Inj. Phenobarbitone 20mg/kg over 10 minutes
Rate: 2mg/kg/mt (Max. 1gm)

OR

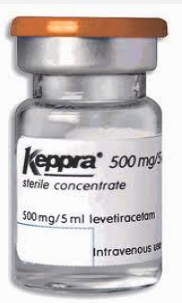
I.V. Levitracetam or Valproic acid
Dose: 40mg/kg at 5mg/kg/mt over 10 minutes

Check: Haemodynamical stability, Liver or metabolic problem, Thrombocytopenia

YES

Valproic acid

NO



Levitracetam

DRUG SUMMARY

Drug	Route	Dose	Comments
Midazolam	IV/IO IM Buccal Intranasal	0.15 mg/kg 0.2 mg/kg 0.5 mg/kg 0.5 mg/kg	Max 10mg. Takes effect within minutes but shorter duration of effect than Lorazepam. Can depress respiration, particularly if repeated dosing. Is usually short-lived and is usually easily managed with bag-mask-valve ventilator support. IM Midazolam more effective than buccal or intra-nasal routes. Intra-nasal route requires mucosal atomizer device for optimal delivery. Buccal Midazolam is twice as effective as rectal diazepam, but both drugs produce the same level and degree of respiratory depression.
Diazepam	IV/IO PR	0.3 mg/kg 0.5 mg/kg	Max 10mg. Rapid onset, duration less than 1 hour. Well absorbed rectally. Widely used but may now be superseded by the more effective Midazolam or Lorazepam where available.
Lorazepam	IV/IO	0.1 mg/kg	Max 4mg. Dilute with saline or water to at least twice the 'neat' volume andgive over 2 minutes. Consider using 0.05mg/kg if prior benzodiazepines or likely to have impaired respiratory drive. Equally or more effective than Midazolam and Diazepam, possibly less respiratory depression. Longer duration of action(12-24 hours)
Phenytoin	IV/IO	20 mg/kg	Max 1g. Give over 20 minutes, made up in 0.9% sodium chloride solution to a maximum concentration of 10mg in 1 ml. Can cause dysrhythmias and hypotension, therefore monitor ECG and BP. Little depressant effect on respiration.
Phenobarbitone	IV/IO	20 mg/kg	Max 1g. Give over 20 minutes. Ensure airway support available, often causes respiratory depression. Monitor blood pressure.
Valproate	IV/IO	30-40 mg/kg	Max 2.4g 1:1 dilution with normal saline or 5% dextrose over 10 minutes. Peak levels are reached within 30 minutes, with an effective half-life of approximately 12 hours. An intravenous infusion can also be considered if the bolus dose was effective. Useful in non-convulsive status.
Levetiracetam	IV/IO	40 mg/kg	Max 3g 1:1 dilution with normal saline or 5% dextrose over 10 minutes.

HEADACHE

- **What are the emergency priorities when evaluating a child with a severe headache ?**

I. Increased ICP (e.g., mass lesion, acute hydrocephalus)
II. Intracranial infections (e.g., meningitis, encephalitis)
III. Subarachnoid hemorrhage
IV. Stroke
V. Malignant hypertention

Lewis DW, Ashwal S, Dahl G, et al. Practice parameter: eavaluation of children and adolescents with recurrent headaches. Report of the Quality standards subcommittee of the American Academy of Neurology and the practice committee of the child Neurology Society. Neurology.2002;59(4):490-498.

WHEN SHOULD NEUROIMAGING BE CONSIDERED IN A CHILD WITH HEADACHE ?

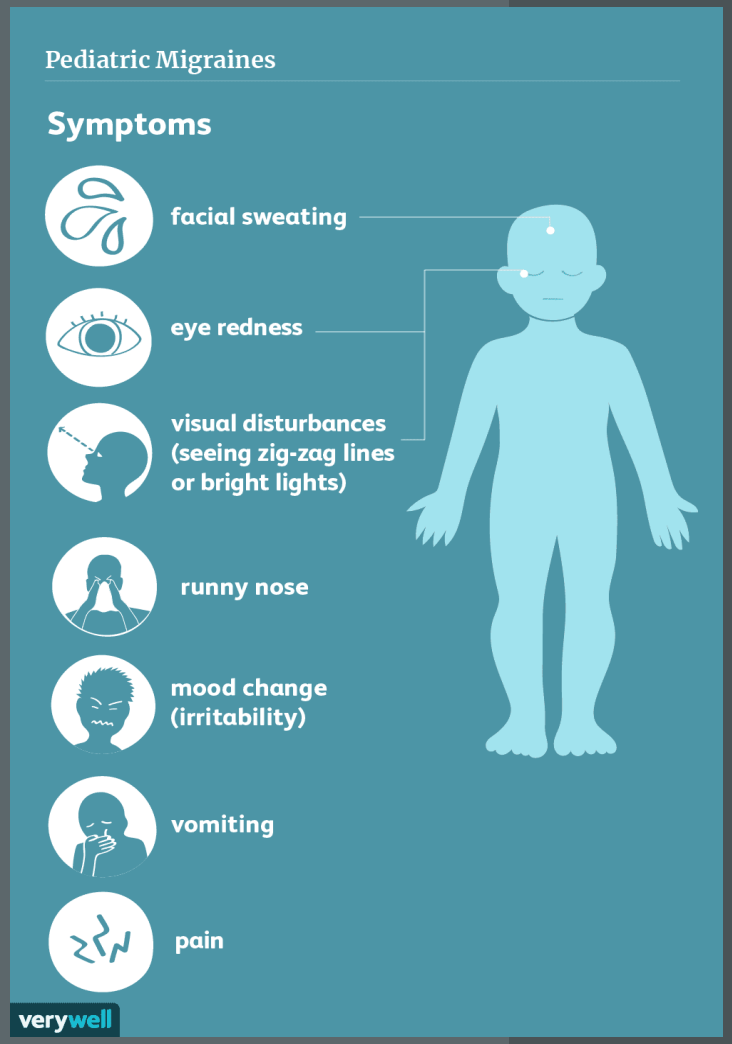
1. Abnormal neurologic signs (oculomotor abnormalities, gait ataxia, papilledema, focal weakness)
2. Headache increasing in frequency and severity
3. Headache occurring in early morning or awakening child from sleep
4. Headache made worse by straining or by sneezing or coughing
5. Headache associated with severe vomiting without nausea
6. Macrocephaly
7. Fall-off in linear growth rate
8. Recent school failure or significant behavioral changes
9. New onset seizures, especially if seizure has a focal onset
10. Cluster headaches in any child or teenager.

WHAT ARE THE THREE PRIMARY HEADACHE DISORDERS IN CHILDREN ?

These are recurrent headaches not attributable to underlying physical disease.

1) **Migraine :** Most common type in chidren (4% in childhood, with a male predominance; after adolescence, are common in females)
2) **Tention :** bilateral, nonpulsating, not aggravated by activity; school problems with stress and absences and family dysfunction are frequently noted
3) **Cluster :** uncommon in childhood; consist of severe unilateral orbital or supraorbital pain with conjunctival injection and tearing

CLINICAL FEATURES OF MIGRAINE HEADACHES IN CHILDREN

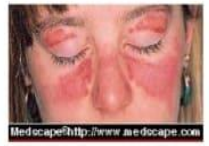


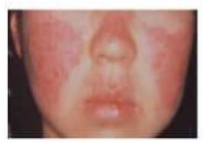
- Headaches with a throbbing/pulsating nature, unilateral in older children and commonly biletral in younger children, lasting 1 to 72 hours.
- Aggravated by routine physical activity and exercise
- Associated with nausea and/or photophobia & phonophobia
- There is often a family history of migraine.
- Abdominal pain, which can actually be an abdominal migraine
- An aura that starts before the migraine or as it begins and which can include visual disruptions, or, less often, muscle weakness on one side of the body (hemiparesis) or language impairment (aphasia)

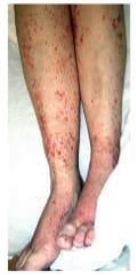
PHYSICAL EXAMINATION

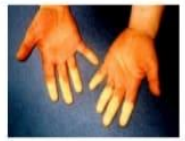
SLE – Cutaneous Manifestations:

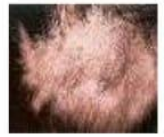
- Photosensitvity
- Malar Rash
- Raynauds Phenomenon
- SLE Vasculitis
- Alopecia (typically scarring)

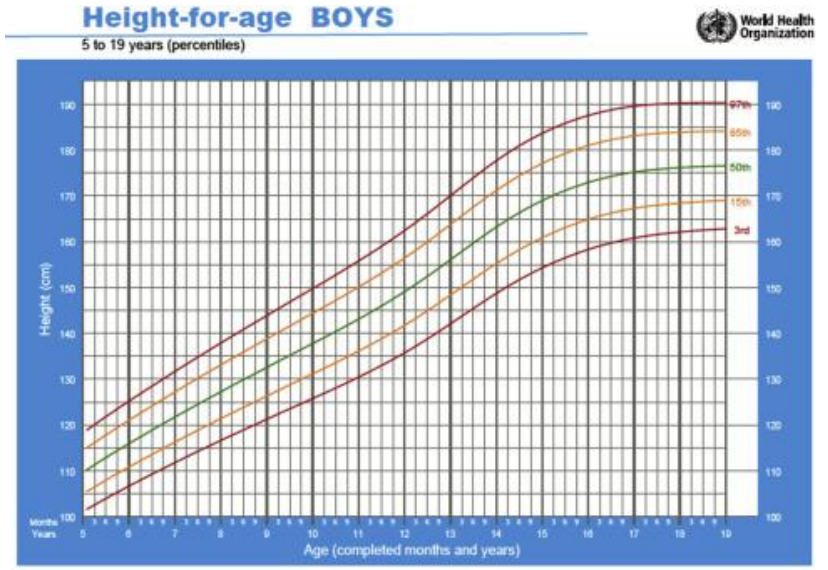


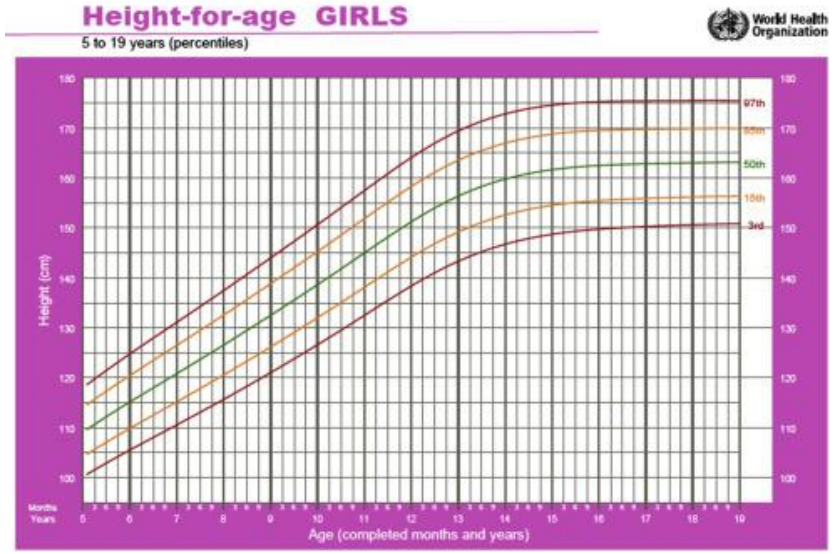












- ❖ Blood pressure
- ❖ Sinus tenderness
- ❖ Auscultation should reveal No cranial bruits
- ❖ The neurologic examination

WHEN DO CHILDREN BEGIN TO HAVE MIGRAINE HEADACHES ?

- About 20% suffer their first headache before the age of 10 years.
- Infantile migraine does occur. It often manifests as vomiting, pallor, vertigo, and ataxia, with or without headache, which can occur in a periodic fasion.

MEDICATIONS

- An age-appropriate dose of an over-the-counter pain reliever (acetaminophen, naproxen, or ibuprofen) as soon as possible when the migraine begins

- An anti-nausea medicine, such as Zofran (ondansetron), if nausea and vomiting is a big part of your child's migraine attacks

An Overview of Migraine in Children
Symptoms, Causes, Diagnosis, Treatment, Prevention, and Coping
By Vincent Iannelli, MD
Medically reviewed by Diana Apetauerova, MD
on April 11, 2021

PREVENTION

- **Nonpharmacologic :**
  - **Lifestyle :**

Avoid common migraine triggers: This includes dietary triggers, skipping meals, poor sleep habits, not getting enough exercise, and not drinking enough water.

Keep in mind that common foods, including many kids' favorites, are thought to trigger migraines, including diet drinks (because of the aspartame in them), cheese, hot dogs and other processed meats (nitrites), soda (caffeine)

Encourage healthy behavior: Since obesity is linked to migraines, make sure your child is getting enough physical activity, eating a diet that consists of plenty of fruits, vegetables, and whole grains, and drinking plenty of water. A consistent sleeping and eating schedule can minimize triggers too.

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PREVENTION

- **Pharmacologic :**
  - **Antidepressants (e.g; tricyclics such as amitriptyline)**
  - **Antihistamine (cyproheptadine, which has antiserotonergic effects)**
  - **Antihypertensives (beta-blockers such as propranolol)**
  - **Anticonvulsants (depaken and topiramate)**
  - **Vitamin B2 (riboflavin)**


Face Shield
Direct Splash Protection

COVID19

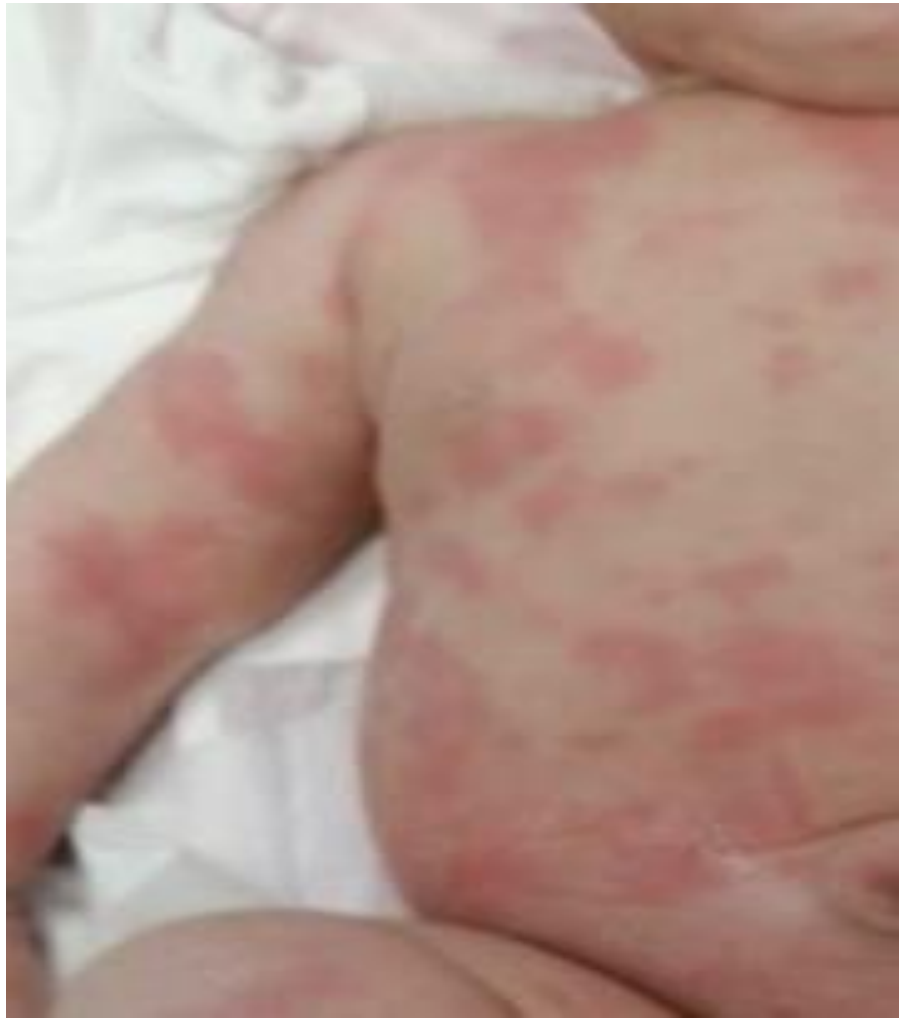
- Since its initial description in December 2019 in Wuhan China, coronavirus disease 2019 (COVID-19), caused by infection with severe acute respiratory syndrome coronavirus 2 (SARS- CoV-2), has rapidly evolved into a worldwide pandemic affecting millions of lives.
- Unlike adults, the vast majority of children with COVID-19 have mild symptoms. However, there are children who have significant respiratory disease, and some children may develop a hyperinflammatory response similar to what has been observed in adults with COVID-19.
- Furthermore, in late April 2020, reports emerged of children with a different clinical syndrome resembling Kawasaki Disease (KD) and toxic shock syndrome; these patients frequently had evidence of prior exposure to SARS-CoV-2.

COVID19 IN PEDIATRICS

- Subsequent to these initial reports from Italy and the United Kingdom, multiple case series from Europe and the United States have surfaced describing a similar phenomenon.
- Several names and case definitions are used to describe this syndrome
- For the purposes of this discussion we will use ”Multisystem Inflammatory Syndrome in Children” **(MIS-C).**

https://www.cdc.gov/mis-c/index.html (1)

COVID19 RASH



MIS-C

Table 1. Comparison of the case definitions and terms for an emerging inflammatory condition during the COVID-19 pandemic

Differences	RCPCH	CDC	WHO
Name	PIMS-temporally associated with COVID-19	Multisystem inflammatory syndrome in children (MIS-C)	MIS-C
Length of fever	Not specified	≥24 h	≥3 days
Age	Child	<21 years	0 to 19 years
Evidence of inflammation	Yes	Yes	Yes
Multisystem	Single organ or multisystem	≥2 systems involved	≥2 systems involved
Exclude other causes	Yes	Yes	Yes
SARS-CoV-2-PCR or antibody or exposure	Not necessary	Necessary	Necessary

CDC Centers for Disease Control and Prevention; COVID-19 coronavirus 19; PIMS paediatric multisystem inflammatory syndrome; RCPCH Royal College of Paediatrics and Child Health; SARS-CoV-2-PCR severe acute respiratory syndrome coronavirus 2 polymerase chain reaction; WHO World Health Organization

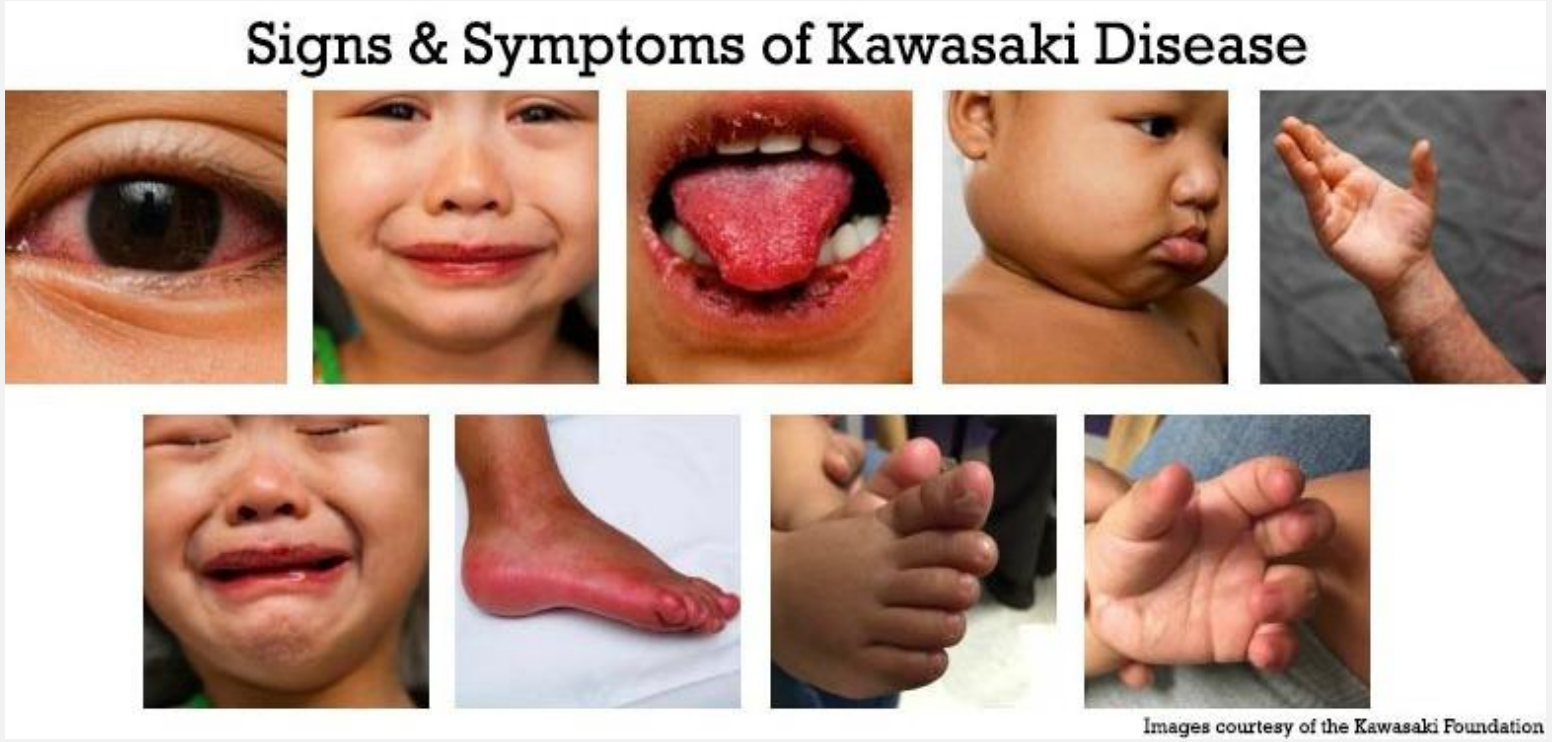
World Health Organization (WHO) Case Definition[42]:

Children and adolescents 0–19 years of age with fever ≥72hour
AND
Two of the following: ○ Acute gastrointestinal symptoms (**diarrhea**, **vomiting**, or **abdominal pain**). ○ **Rash** or bilateral non-purulent conjunctivitis or mucocutaneous inflammation signs (oral, hands, or feet). ○ **Hypotension** or shock. ○ Features of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities (including ECHO findings or elevated Troponin/NT-proBNP), ○ Evidence of coagulopathy (by PT, PTT, elevated d-Dimers). ***Bolded symptoms are most common presenting symptoms**
AND
Elevated markers of inflammation such as ESR, C-reactive protein (CRP), or procalcitonin (PCT)
AND
No other apparent microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes.
AND
Evidence of COVID-19 (RT-PCR, antigen test or serology positive), or likely contact with patients with COVID-19

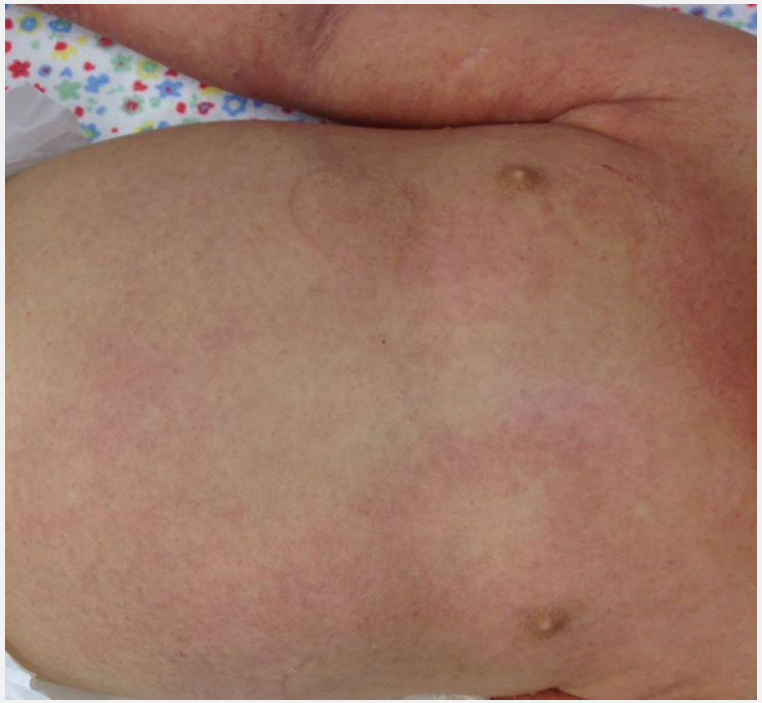
World Health Organization. Multisystem inflammatory syndrome in children and adolescents temporally related to COVID-19. Scientific Brief, 15 May 2020.
Geneva, Switzerland: WHO;2020: https://www.who.int/news-room/commentaries/detail/multisystem-inflammatory-syndrome-in-children-and-adolescents-with-covid-19 (Accessed June 17, 2020).

PRESENTATION

- **1. Kawasaki disease classic or incomplete**



Presentation



2- presentation as toxic shock syndrome (TSS)

Features of toxic shock syndrome (TSS)

Hypotension with ≥2 of the following clinical and laboratory abnormalities:

- Fever >38.5°C
- Rash (diffuse macular erythema with subsequent desquamation)
- Renal impairment
- Coagulopathy (platelets <100x109/L or disseminated intravascular coagulation)
- Liver enzyme abnormalities
- Acute respiratory distress syndrome
- Extensive tissue necrosis (including necrotizing fasciitis)
- Gastrointestinal symptoms

PRESENTATION

3. Presentation as fever with hyperinflamation

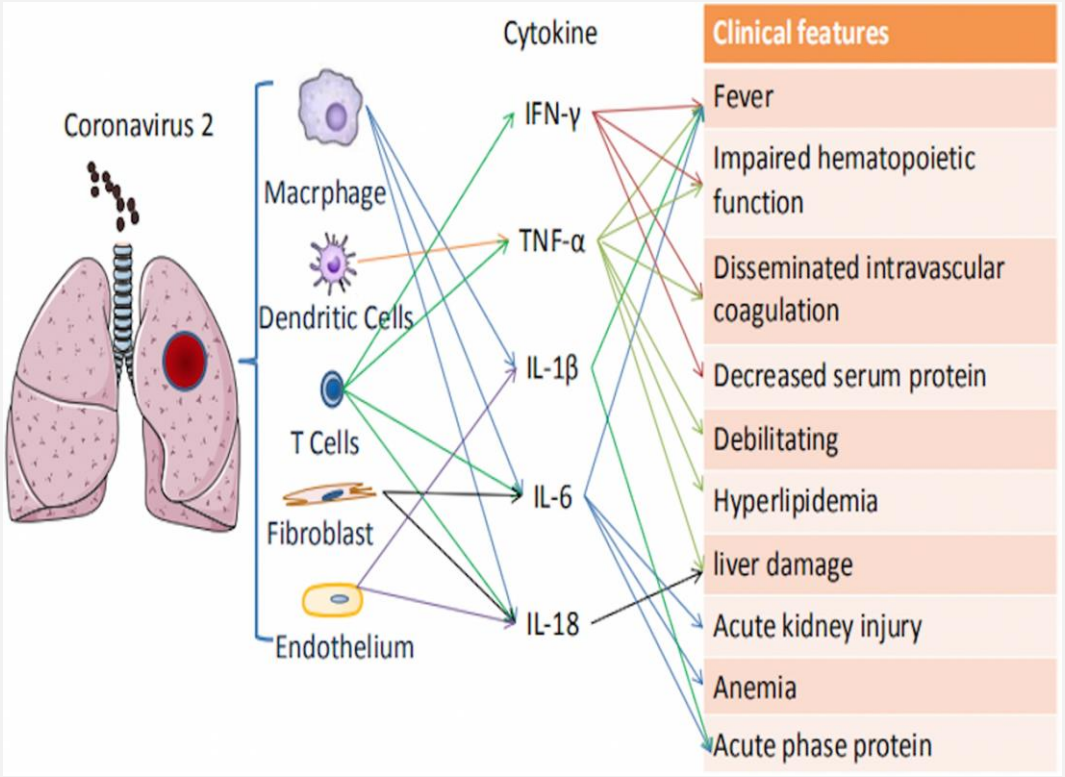
- Patients presenting with a persistent fever, fatigue, and a variety of signs and symptoms including multiorgan (e.g., cardiac, gastrointestinal, renal, hematologic, dermatologic, neurologic) involvement, and elevated inflammatory markers.

PRESENTATION

4. Cytokine Storm Syndrome CSS or Macrophage Activation Syndrome MAS.

This syndrome is characterized by an overproduction of pro-inflammatory cytokines including TNF, IL-6, and IL-1β resulting in clinical symptoms of :

- High fever
- Rashes
- Coagulopathy
- Neurologic changes
- Some progressing to multiple organ failure and death.



Cytokine storm intervention in the early stages of COVID-19 pneumonia
Author links open overlay panelXinjuanSun[a1]TianyuanWang[a1]DayongCai[b]ZhiweiHu[a]Jin'anChen[a]HuiLiao[c]LimingZhi[d]HongxiaWei[e]ZhihongZhang[f]YuyingQiu[g]JingWang[d]AipingWang[a]
Show more
https://doi.org/10.1016/j.cytogfr.2020.04.002

CYTOKINE STORM SYNDROME CSS OR MACROPHAGE ACTIVATION SYNDROME MAS.

- Lab abnormalities frequently associated with CSS include:
- Thrombocytopenia
- Lymphopenia
- Hypofibrinogenemia
- Decreasing ESR
- Elevations of the following: transaminase levels, D-dimers, lactate dehydrogenase (LDH), coagulation times, triglycerides, CRP, and ferritin.

PRESENTATION

5. Presentation as death with evidence of covid19 infection.

WORK UP

Investigations for suspected PIMS/MIS-C cases	
Screening hyperinflammation labs	CBC, differential, CRP, ESR ,PCT
Additional baseline labs	Electrolytes, ALT, CK, serum creatinine, urinalysis
Cardiac	Troponin, NT-proBNP, ECG, CXR, ECHO
Microbiology	COVID-19 PCR, COVID-19 serology Bacterial cultures, viral swabs (as needed)
Additional MAS/CSS markers	Ferritin, LDH, fibrinogen, D-dimers, PT,PTT, INR, triglycerides

Laboratory features suggestive of PIMS/MIS-C

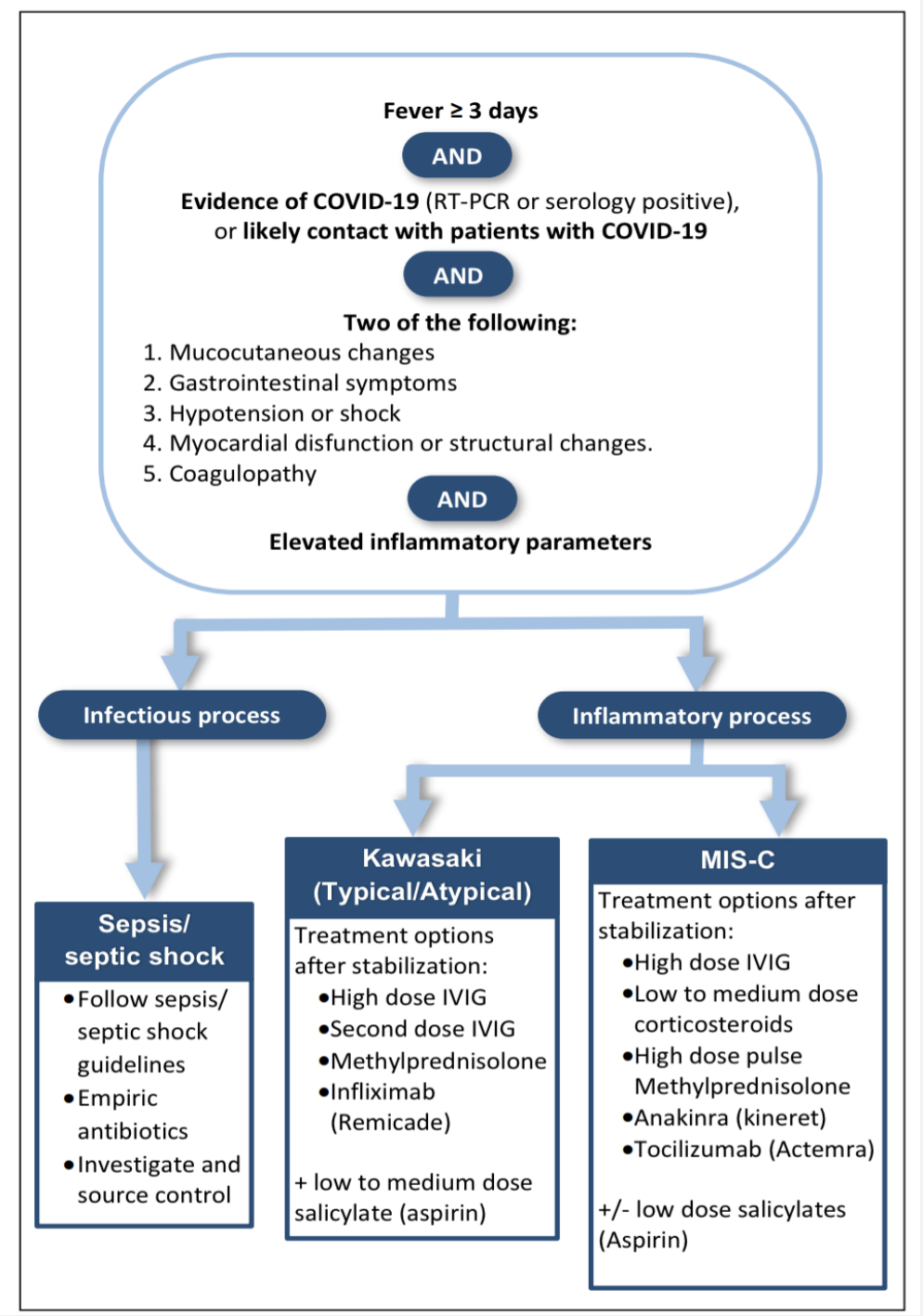
- CRP ≥50 mg/L
- ferritin >500 mcg/L
- platelets <150 x109/L
- Hb <90 g/L.
- lymphopenia <1000/mcL • hypoalbuminemia
- neutrophilia
- LDH>300U/L.
- D-Dimer>1000ng/ml.

MANAGEMENT

FOR CLINICIAN ENCOUNTERING POTENTIAL MIS-C P SEP

- Conditions mimic MIS-C and possible therapy

  Options for each.
- The management choices should be Discussed with rheumatology or infectious diseases services.



Reference : Management of COVID-19 In children, Kuwait pediatric Task Force Recommendations.

MANAGEMENT OF MIS-C

- Admit to the COVID ward and start monitoring the vital signs and frequent blood pressure measurements
- Consult rheumatology, cardiology, and infectious disease services as well as consideration to involve the PICU team

UPPER RESPIRATORY INFECTIONS

i. Simple URI (common cold)

1. **Etiology :** More than 100 viruses have been implicated and include rhinovirus, parainfluenza virus, coronavirus, and RSV

2. **Clinical features :**

Low grade fever, rhinorrhea, cough, and sore throat. Symptoms resolve within 7-10 days .

- color of nasal discharge alone does not predict the presence of concurrent sinusitis because purulent nasal discharge may occur early in the course of a URI .
- persistent symptoms (> 10 days) or persistent fever should prompt the clinician to evaluate for bacterial superinfection (e.g : sinusitis, AOM)

UPPER RESPIRATORY INFECTIONS

Diagnosis : is base on clinical features. The viral agent is rarely identified

Management : ensure adequate hydration, particularly in young children.

- (antihistamines, mucolytics , cough suppressants, and decongestants)

  have minimal effectiveness and may cause side effects.

Antibiotics have no role in the management .

UPPER RESPIRATORY INFECTIONS

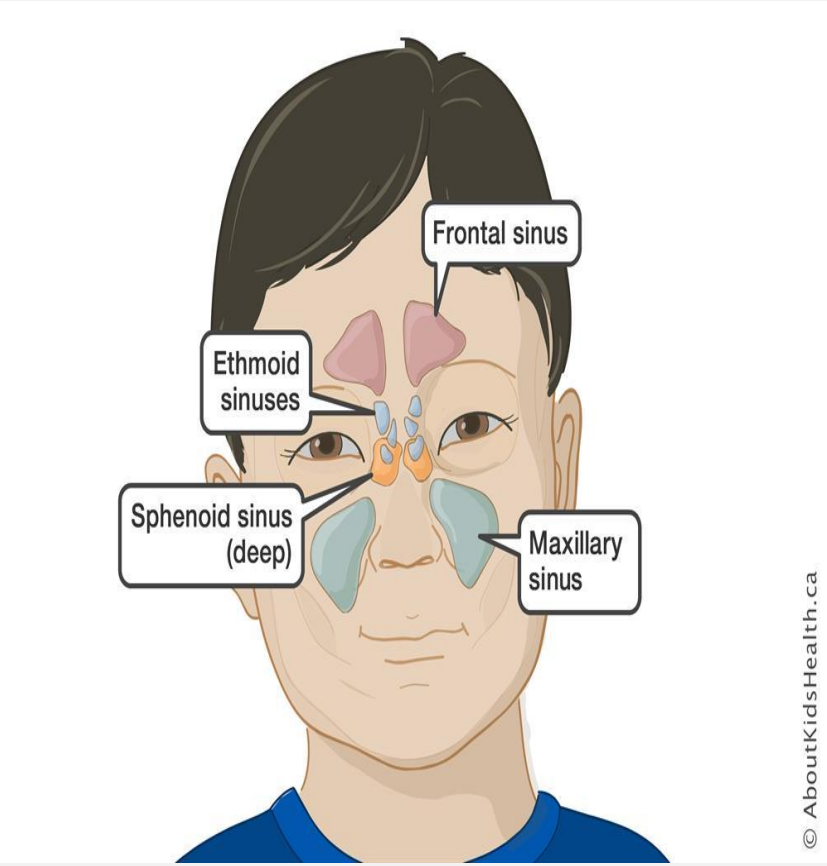
- **ii. Sinusitis**

1. **Development of the sinuses :** Ethmoid and maxillary sinuses form in the third to fourth month of gestation and are present at birth. The sphenoid sinuses develop between 3 & 5 years of age, and Frontal sinuses between 7 and 10 years of age.

2. **Categories of sinusitis :** Sinusitis is divided into acute, Subacute, and chronic forms on the basis of duration of symptoms.

3. **Diagnosis** : is based on clinical features. Some Time the X-ray sinuses can help in the diagnosis

4. **Management :** Empiric antibiotic therapy (for example, with amoxicillin-clavulanate) to cover likely pathogens, including : S.pneumoniae, H.influenzae, and M.Catarrhalis .



UPPER RESPIRATORY INFECTIONS

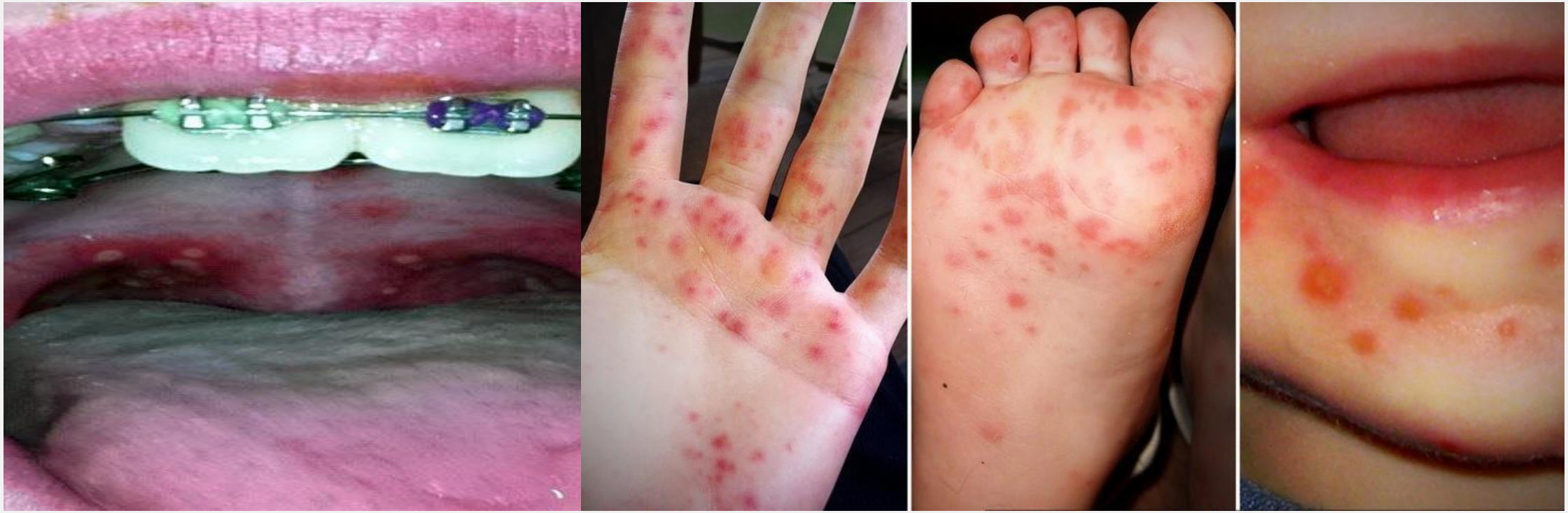
iii. pharyngitis

1. **Etiology** :

- Viral causes include : those viruses associated with simple URTIs, as well as coxsackievirus, EBV, and CMV
- Bacterial causes include : Streptococcus pyogenes (group A B-hemolytic streptococcus (GABHS) or strep throat) , Arcanobacterium hemolyticum and Corynebacterium diphtheriae (diphtheria) .

2. **Clinical features :** The clinical features of viral pharyngitis and GABHS pharyngitis overlap

UPPER RESPIRATORY INFECTIONS



UPPER RESPIRATORY INFECTIONS

➢ Bacterial pharyngitis :

✓ GABHS pharyngitis (strep throat) is usually seen in school aged children (5-15 years) and most commonly in the winter and spring

1. lack of other URI symptoms (rhinorrhea, cough)
2. Exudates on the tonsils, petechiae on the soft palate, strawberry tongue, and enlarged tender anterior cervical lymph nodes
3. Fever
4. Scarlatiniform rash in some patients

BACTERIAL PHARYNGITIS :

➢ Diagnosis :

Patients with suspected GABHS pharyngitis should undergo culture (gold standard) or antigen testing (rapid strep test) to confirm GABHS pharyngitis and to avoid the overuse of antibiotics.

➢ Management :

A. Viral pharyngitis: is supportive and includes analgesics and maintenance of adequate hydration .

B. GABHS pharyngitis : Oral penicillin , a single dose of IM benzathine penicillin Or for penicillin-allergic patients, macrolide

C. Management of severe EBV pharyngitis , with pending airway obstruction, may sometimes include corticosteroids.

ACUTE OTITIS MEDIA

❖ **Etiology :**

- Bacterial pathogens include S.pneumoniae, nontypeable H.influenzae, and Moraxella catarrhalis.
- Viruses causing URIs also commonly cause AOM.

❖ **Clinical features :**

a. AOM usually develops during or after a URI

b. Symptoms may include fever, ear pain, and decreased hearing.

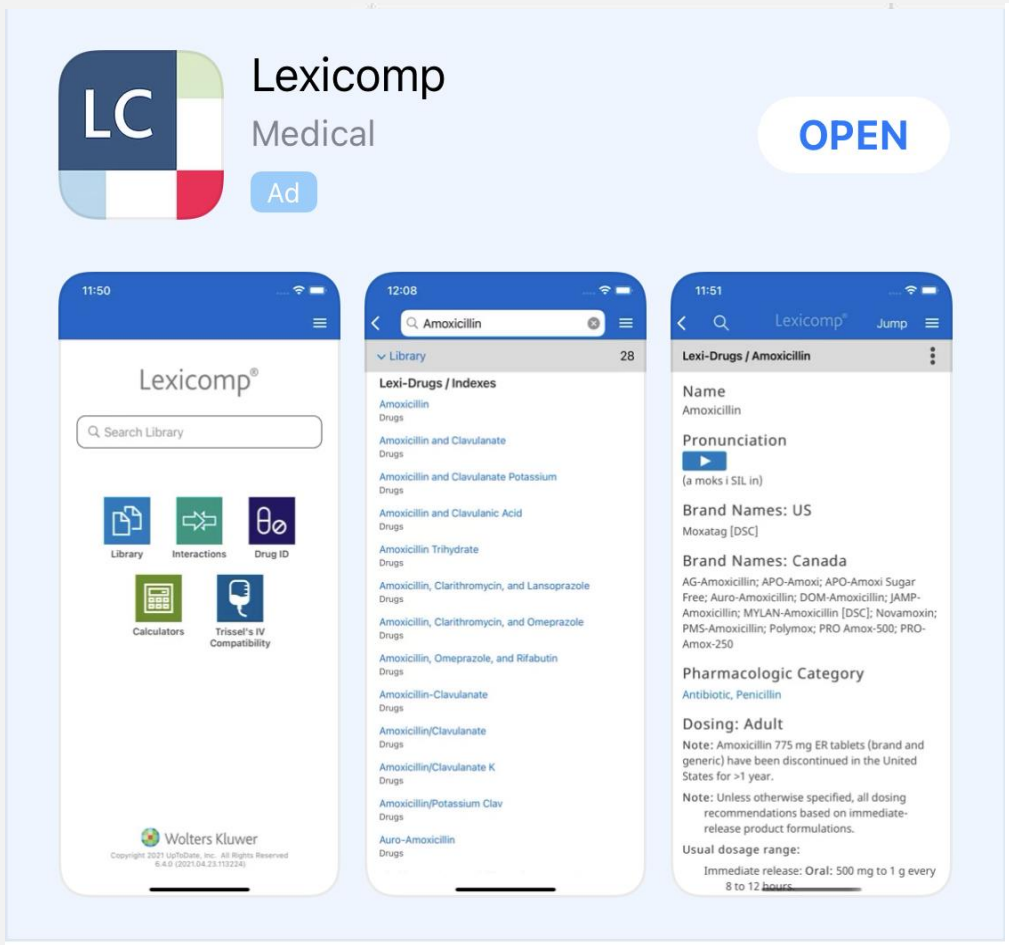
c. If the tympanic membrane perforates, patients may report pus or fluid draining from the ear

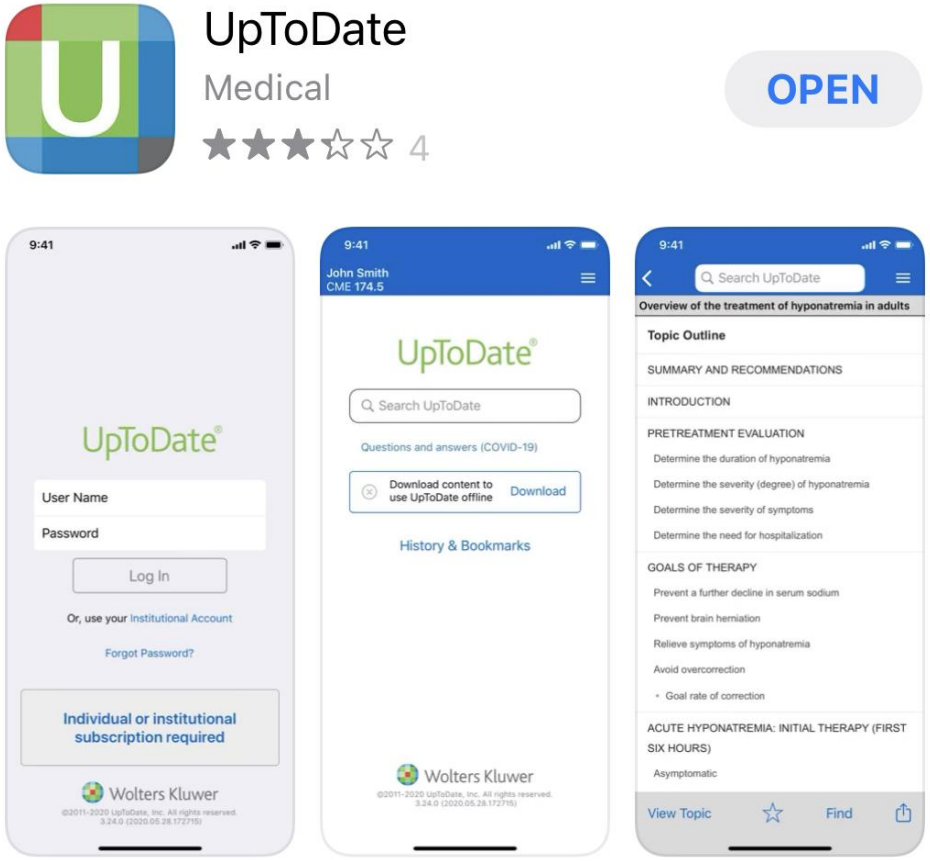
ACUTE OTITIS MEDIA

- **Management :**

1) Antibiotics are not always indicated .
2) high-dose amoxicillin, amoxicillin-clavulanic acid, or cephalosporin.
3) Macrolides maybe used in penicillin-allergic patients

COMMONLY PRESCRIBED PEDIATRIC MEDICATIONS

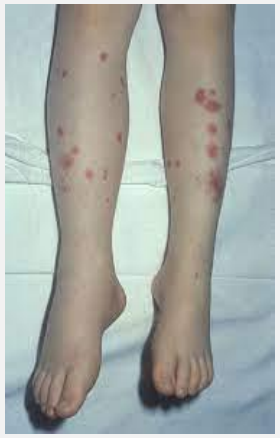




WHEN TO REFER A CHILD TO THE HOSPITAL

- Poisoning (plants, pills & potions)
- Chemical exposure
- Immersion (delay respiratory distress after immersion injury… and the need for a prolonged period of close observation and monitoring even in children who initially appear well)
- Electrocution
- Burns

RED FLAGS ILLNESS

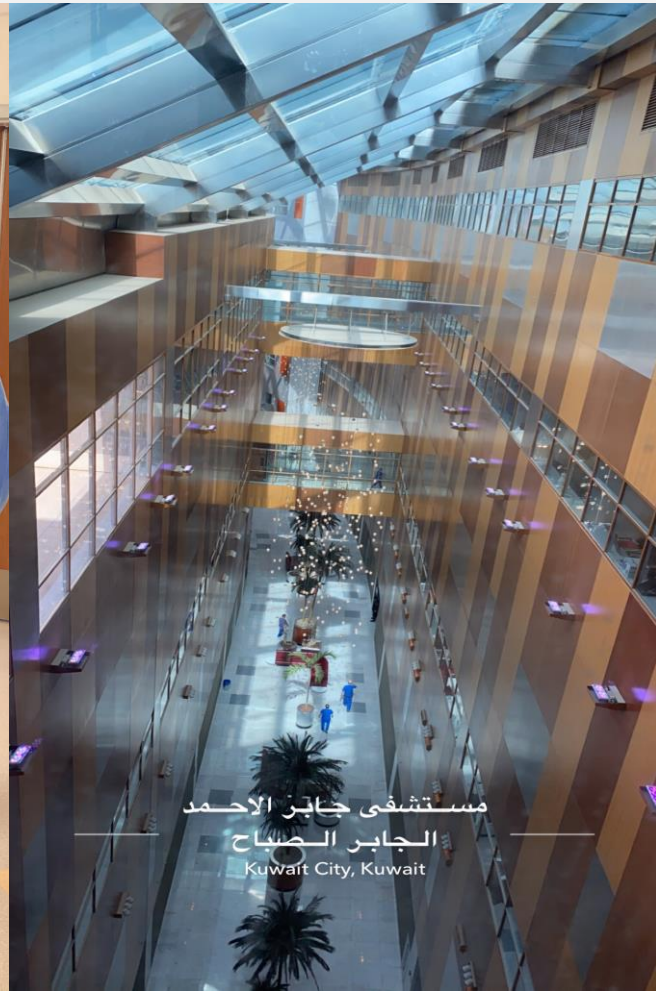


- Petechial/purpuric rash
- Testicular pain (Don't Ever Forget the Gonads especially when child presents with lower abdo or pelvic pain) Torsion is the red flag testicular condition
- Bile-stained or Projectile vomit & Jaundice
- Vomiting blood
- Redcurrant stool
- Hypo/ hyperglycaemia
- Allergy/ Anaphylaxis
- Any infant < 1 month old with fever
- Sexual abused kids
- Status epilepticus

THANK YOU


HOW TO REDUCE YOUR RISK OF THE
CORONAVIRUS INFECTION:
WASH HANDS FREQUENTLY
DON'T TOUCH YOUR FACE!
FEELING SICK? STAY HOME!
PRACTICE SOCIAL DISTANCING
COVER YOUR COUGH


JABER ALAHMAD HOSPITAL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