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* The write up should be in accordance with the recommendations of Central IAP particularly with issues involving National Programmes like Immunization, Public Health Programs and Nutrition.

* NOTE: Many trade names of the vaccines are included in the text for the sake of clarity.

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FEVER - PATHOPHYSIOLOGY AND TYPES

*Ashwath D

Abstract: The basic mechanisms of thermoregulation with specific reference to elevated body temperature is discussed. A distinction is made between fever and elevation of body temperature due to other causes like environment. The different types of fever based on etiology and clinical characteristics are briefly reviewed.

Keywords: Fever, Thermoregulation, Pyrexia, Pyrogens.

Points to Remember

• Fever is elevation of core body temperature above the normal for the age and species.
• The body temperature is regulated by the hypothalamic thermoregulatory center.
• The ill effects of fever are multisystemic.
• The clinical patterns of fever may help in suspecting the etiology.
• Hyperpyrexia (temperature > 41°C) is typically seen with non infectious causes.

References


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FEVER IN NEONATES

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Abstract: Fever in a neonate is one of the symptoms causing concern and requiring admission to NICU. Fever in neonates is defined as rectal temperature ≥38°C. It is important to differentiate between environmental exposure hyperthermia and fever in neonates. Neonates with environmental hyperthermia are usually active, alert and have stable vital parameters. Once the environmental factors causing hyperthermia are corrected, their body temperature normalizes rapidly without any other treatment being required. After ruling out hyperthermia due to environmental causes, all neonates with fever should have complete sepsis work up including cerebrospinal fluid analysis to rule out serious bacterial infection. When there is no apparent focus of fever, empiric antibiotics should be started in these neonates based on local antibiogram without waiting for other laboratory reports.

Keywords: Hyperthermia, Neonate, Serious Bacterial Infection, Fever without focus.

Points to Remember

- Fever in neonates may be a manifestation of underlying serious bacterial infection.
- Detailed history and examination should be done for all neonates with fever.
- Environmental hyperthermia is one of the important reasons for increased body temperature in neonates and should be ruled out in stable, well looking neonates.
- Dehydration is an important cause of fever and is often associated with hypernatremia.
- All neonates with fever and rash must be evaluated.
- Neonates having fever without focus should undergo full sepsis workup.
- All neonates with fever should be admitted and started on intravenous antibiotics after sending investigations.

References


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FEVER

APPROACH TO FEVER WITHOUT LOCALIZING SIGNS IN CHILDREN AGED 1 TO 36 MONTHS - INDIAN CONTEXT

*Rajesh Chokhani

Abstract: Fever without localizing signs is a common symptom in children. It can be due to mild self limiting illnesses or serious causes. A pediatrician should be able to discriminate the mild from the serious causes by using a systematic approach that involves detailed history, careful examination and select laboratory tests. While the disease process evolves, symptomatic treatment and careful follow up are essential to recognize any clinical deterioration. At the same time, one should avoid unnecessary investigations and inappropriate antibiotics.

Keywords: Fever without focus, Well looking febrile infant, Serious bacterial infection.

Points to Remember

- Confirm the presence of fever.
- A detailed history and careful clinical examination are vital to pick up localizing symptoms and signs.
- Even when a febrile infant 1 to 3 months of age is assessed to be otherwise ‘well’, screening investigations to rule out a serious bacterial infection are ideal with urinalysis being a must.
- In older infants and young children, a sound clinical approach can safely guide decision making on further management.
- The need for a constant follow up is essential until fever subsides or a clear diagnosis is made.

References


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APPREACH TO A CHILD WITH FEVER LESS THAN ONE WEEK DURATION

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Abstract: Fever, a thermo regulated elevation of body temperature above normal daily variation, is the most common reason for parents to seek medical care. The disease spectrum in Indian children is more diverse than western countries, with tropical diseases and serious bacterial infections being more common. Since most short duration fevers are self-limited, the primary goal of treatment is to keep the child comfortable, while looking for the localizing signs. Fever without localizing signs pose a unique challenge, especially in young infants who are prone to a wide spectrum of viral and serious bacterial infections. While a well appearing infant needs only parental reassurance and adequate follow-up, an ill appearing infant needs further investigations based on local epidemiology. A thorough clinical assessment and prudent selection of laboratory tests identify at-risk children, aiding in prompt management.

Keywords: Febrile illness, Short duration, Antipyretics, Serious bacterial infections, Tropical infections.

Points to Remember

- Short duration fevers are usually self-limiting and caused by common viruses.
- Disease profile of Indian children is different from the western population and clinical examination with relevant investigation is important.
- Fever maybe the only early sign of serious bacterial infections in young infants requiring hospitalization, where empirical broad-spectrum antibiotics and complete evaluation into the cause are required.
- Undifferentiated, benign viral fevers presenting with rash need to be differentiated early from sinister entities like meningococemia, scrub typhus, dengue fever and Kawasaki disease based on the pattern of rash appearance and distribution.
- Older children usually have localizing signs for infection which need to be actively searched for and treatment instituted appropriately.
- Undifferentiated fever in children with immunodeficiency or immunocompromised states need aggressive evaluation for source of infection and warrant early initiation of empirical antibiotics.
- Antibiotics in short duration fevers is justified only when a bacterial source of infection is conclusively identified.
- Pediatricians play an active role in counseling the parents regarding danger signs of infection, when to seek medical care, allay fears and address common misconceptions regarding fever even during wellness visits of the child to the clinic.

References

3. Ward MA, Hannemann NL. Fever: Pathogenesis and treatment. In: Feigin and Cherry’s Textbook of Pediatric...


APPRAOCH TO A CHILD WITH FEVER OF 1-2 WEEKS DURATION

*Monjori Mitra
**Satyaki Das

Abstract: Fever is one of the common clinical symptoms seen in pediatric population diagnosed with an identified bacterial or viral infection. In several others, the fever may be prolonged for a longer duration commonly called fever of unknown origin (FUO). Common causes are infectious in nature such as viral, bacterial, fungal and parasitic. Non-infectious causes are immune-mediated and granulomatous diseases, periodic fever syndromes and autoinflammatory disorders and neoplasms. Important factors to be considered for diagnosis are periodicity of fever and associated signs and symptoms. When investigating prolonged fever, it is important to consider the age at onset, family history, travel history, exposure to animals, periodicity, associated symptoms and response to treatment. Along with case history data, a careful physical examination during and between febrile episodes may provide useful clues and guide laboratory investigations. A careful watch is mandatory in cases of prolonged fever because new signs and symptoms may appear over time which may help to approach the diagnosis.

Keywords: Fever of unknown origin, Fever etiology, Fever periodicity, Relapsing fever.

Points to Remember

- When investigating fever of 1-2 weeks, it is important to consider the age at onset, family history, travel history, exposure to animals, periodicity, associated symptoms and response to treatment.

- A careful physical examination during and between febrile episodes may provide useful clues and guide laboratory investigations.

- It is important to rule out the possibility of an infectious disease, the common ones being enteric fever, scrub typhus, malaria and leptospirosis.

- After excluding an infectious etiology, neoplastic, immune-mediated and autoinflammatory causes should be taken into consideration.

- Repeated clinical examinations are mandatory, as new signs and symptoms may appear over time which may give a clue to the likely diagnosis and help to choose the appropriate laboratory investigations.

References

APPROACH TO A CHILD WITH FEVER BEYOND 2 WEEKS

*Arun George
**Winsley Rose

Abstract: Prolonged fever of two weeks duration or more poses diagnostic challenges due to a wide variety of differential diagnoses including infections, malignancies, rheumatological conditions and other rare causes. It is important to have a structured approach to make a definitive diagnosis. A good history, meticulous physical examination supported by a step wise escalation of investigations to arrive at a definite diagnosis is the key to successful management of prolonged fever. Empirical steroids, anti-tuberculous and broad spectrum antibiotic therapy should be avoided till a definite diagnosis is established.

Keywords: Fever, Pyrexia of unknown origin, Approach, Algorithm.

Points to Remember

- A detailed history and thorough examination are the cornerstone for diagnosis in a child with prolonged fever.
- Epidemiological data, contact history, previous medical history, fever pattern, focused physical examination and screening tests often provide adequate information to establish a diagnosis.
- Non-invasive tests are performed first before taking up the child for invasive and expensive investigations in a step wise manner based on the clinical details.
- Management includes supportive treatment as well as targeted therapy after the diagnosis is obtained. Empirical broad spectrum antimicrobials, anti-malarials, anti tuberculous therapy and steroids should be avoided.

References


PERIODIC FEVER

*Karamath S. Pyarejan

Abstract: Periodic fevers are often poorly understood due to the lack of understanding and many a times are missed. Even though these are rare, the children who have these conditions are subjected to multiple unnecessary investigations and treatments. Understanding the concept of auto-inflammation can be helpful in the approach to many chronic diseases and their treatment.

Keywords: Periodic fever, Autoinflammatory syndromes, Recurrent fever.

Points to Remember

- Fever need not always be due to infections.
- Autoimmunity and auto-inflammation are both self directed inflammation processes.
- Periodic fevers must be thought of in a well child with episodic / recurrent fever.
- Steroids/ immunosuppressants should always be started after a proper diagnosis.

References


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FEVER IN THE IMMUNOCOMPROMISED CHILD

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Abstract: Fever in the immunocompromised child is a medical emergency, which if left untreated can lead to serious morbidity and mortality. High degree of suspicion, prompt evaluation and management are essential for a successful outcome in children with febrile neutropenia. Although majority of them may not have localizing symptoms or signs, a detailed history and frequent physical examination specifically of the perianal region, central line sites, ear and oral cavity are mandatory to identify source of infection. Blood cultures (adequate volume) are essential in identifying the bug especially when there is no identifiable focus. Risk stratification based on underlying disease, severity of neutropenia and presence of other comorbidities is essential in categorizing the severity and guiding decision on admission or outpatient therapy. Initial stabilization, prompt initiation of appropriate antibiotics (with anti-pseudomonas cover) and adequate supportive care are the cornerstones of treatment. Delay in administering the first dose of antibiotic significantly worsens the outcome. Education of the family as well as the primary pediatrician is important in this regard. Diagnosis and management of such fevers in the ER and the pediatric ward are reviewed along with institutional practices which are of special relevance to the primary pediatrician.

Keywords: Neutropenia, Immunocompromised, Malignancy, Hematopoietic stem cell transplant, Culture, Anti-pseudomonas cover.

Points to Remember

- High index of suspicion, prompt diagnosis and management are essential in cases of fever in the immunocompromised which is a medical emergency and can present with only fever and subtle or atypical or no clinical signs.
- Risk stratification based on underlying disease, degree of neutropenia, expected fall in ANC and underlying medical comorbidities helps in deciding on the need for admission and appropriate antibiotic.
- Meticulous physical examination - especially the perianal region, ENT, central line site, to look for focus of infection.
- Adequate volume of blood cultures (both via central and peripheral lines) is crucial in identifying the organism, especially in cases where the focus of infection is not identifiable.
- Appropriate antibiotic having anti pseudomonas cover, should be administered within the first hour, as delay in giving the first dose of antibiotic increases the morbidity and mortality.
- Addition of Gram-positive coverage / empiric antifungal coverage is needed wherever essential
- CMV, adenovirus, varicella are common viral infections in post haplo-hematopoietic stem cell transplant setting.
- Good supportive care and strict aseptic precautions are important components to ensure successful outcomes.

References


SYMPTOMATIC MANAGEMENT OF FEVER

*Yagnesh Popat  
**Swati Popat

Abstract: Fever is a normal response in many conditions, the most common of which is infection. Treatment of fever may be helpful if the child is uncomfortable and includes both pharmacological and non-pharmacological therapy. Recommended antipyretic is paracetamol according to the child’s age and weight. Simultaneously the cause of the fever should be evaluated and treated accordingly.

Keywords: Fever, Antipyretics, Treatment, Children, Paracetamol.

Points to Remember

- Fever is just symptom and not a disease.
- Antipyretics are used to reduce the discomfort associated with fever.
- Paracetamol and ibuprofen are the antipyretics of the choice.
- Counsel parents to on the proper dose of the antipyretics and to avoid fever phobia.

References

ANTIMICROBIAL CHOICE IN TROPICAL INFECTIONS

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Abstract: Febrile infections that are prevalent and unique to tropical and subtropical regions are collectively known as tropical infections. Enteric fever, leptospirosis, scrub typhus and malaria are the most commonly encountered tropical infections in our country. Epidemiology, disease pattern, morbidity and mortality varies from region to region. It is important to treat them early as delay in institution of specific therapy may lead to increased morbidity and mortality. Early diagnosis and prompt management by choosing appropriate antimicrobial agents is very crucial for favorable outcome. Blood culture is the gold standard for the diagnosis of enteric fever. Third generation cephalosporins are considered as the first choice for treatment. Azithromycin is reserved for relapses and should ideally be used for extensively drug resistant typhoid. Diagnosis of leptospirosis and scrub typhus mainly depend upon relevant epidemiological factors with typical clinical features. Drug of choice for leptospirosis is penicillin while doxycycline is the drug of choice for scrub typhus. For uncomplicated P. vivax chloroquine is the drug of choice. Artemisinin combination therapy is recommended for falciparum malaria. All severe and complicated malaria should be treated as falciparum malaria. Primaquine is needed for prevention of relapses in malaria.

Keywords: Tropical infections, Antimicrobial, Enteric fever, Scrub typhus, Leptospirosis, Malaria, Children.

Points to Remember

- Third generation cephalosporins are the drug of choice for multidrug resistant typhoid currently and azithromycin is to be reserved for XDR enteric fever.
- In mild cases of leptospirosis, doxycycline is to be used and in severe cases IV penicillin or ceftriaxone if allergic to penicillin.
- Doxycycline is the drug of choice irrespective of the age of the child in Indian tick typhus and scrub typhus and treatment should begin promptly without waiting for confirmatory laboratory results.
- For uncomplicated vivax malaria chloroquine is the drug of choice.
- Artemesinin combination therapy is the treatment of choice in all cases of falciparum malaria.
- All cases of severe and complicated malaria should be treated as falciparum malaria irrespective of the species of malarial parasite on smear examination.
- For rapid killing of malaria parasites, IV artesunate is a must at least for the first 24 hours, even if the child is able to take orally.
- Primaquine is recommended in appropriate dose and duration for prevention of relapses in malaria.

References

5. Bharmoria A, Shukla A, Sharma K. Typhoid fever as a
callenge for developing countries and elusive diagnostic
approaches available for the enteric fever. Int J Vaccine

6. Shastri D, Singhal T. Antimicrobial therapy in enteric fever,
IAP speciality series on Rational antimicrobial practice in
Pediatrics, third edition, Jaypee publications New Delhi
2018 pp252-259.

ciprofloxacin breakpoints for Salmonella Typhi: its
implications in India. Indian J Med Microbiol 2014;

ceftriaxone for the treatment of uncomplicated typhoid
[PubMed]

9. Adler B, de la Peña Moctezuma A. Leptospira and

10. LeptospirosisFact Sheet- WHO, South-East Asia. Available
at: https://apps.who.int/iris/handle/10665/205437.

11. Shivakumar S. Indian Guidelines for diagnosis and
management of human Leptospriosis-ICMR-
www.apiindia.org>chap07 antimicrobila

Behrman RE. eds, Nelson Textbook of Pediatrics, 21st edn,
Reed Elsevier India Private Ltd., New Delhi 2020;
pp6438-6444.

13. Bithu R, Kanodia V, Maheshwari RK. Possibility of
scrub typhus in FUO cases: An experience from Rajasthan.


15. Rathi N, RathiA. Rickettsial infections: Indian perspective.
Indian Pediatr 2010; 47:157-164.

16. Watt G, Chouriyagune C, Ruangweerayud R,
Scrub typhus infections poorly responsive to antibiotics


18. Elisabeth BN, Cristina S, Didier R, Philippe P. Treatment
of Rickettsia spp. infections: a review. Expert Rev Anti

Nussinovitch M. Absence of Tooth Staining With
Doxyccycline Treatment in Young Children. Clin Pediatr

of malaria. Third edition April World Health Organization,
2015.

21. World Health Organization. Guidelines for the treatment

22. National Vector Borne Disease Control Programme
(NVBDPC), Ministry of Health & Family Welfare,
Government of India. Designed and Developed by
Center for Health Informatics Updated On: October 15,
2020.

23. Infectious diseases chapter, Indian Academy of pediatrics.
Pediatr 2008; 45:731-735.
DENGUE VACCINES UPDATE

*Shyamala J

Abstract: Dengue is a widely prevalent arbovirus infection with a large number of symptomatic infections occurring every year across the world. Severe dengue can contribute to significant morbidity and mortality and has no specific treatment. With the non-availability of an effective vaccine, the only known preventive measure was mosquito control which was difficult to achieve. The first vaccine that was licensed, Dengvaxia, brought many safety issues to the fore, on account of antibody dependent enhancement. Many newer vaccines are currently being developed, keeping these issues in mind - some in phase III and phase I trials, some in the pre-clinical stage. It is a matter of time before a safe and effective dengue vaccine becomes available.

Keywords: Dengue, Vaccine, Safety, Pre-clinical, Antibody dependent enhancement, Dengvaxia, TAK 003, Virus like particles.

Points to Remember

- Dengvaxia was the first dengue vaccine to be licensed. Though the response was good in the first 2 years, it was mired in controversy after many deaths were noted among vaccinated children in the Philippines.
- No dengue vaccine is yet approved for widespread use.
- Several vaccines - live attenuated, inactivated, DNA vaccines, subunit vaccines are in advanced stages of trial and many in pre clinical trials.
- Burgeoning vaccine technology in recent times may help develop an effective vaccine against all serotypes of dengue with minimal side effects in the near future.

References


MEDICATIONS TO MANAGE ACUTE EXACERBATION OF ASTHMA IN CHILDREN

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Abstract: Acute exacerbation of asthma is one of the common pediatric emergencies that require early identification and prompt management. There are number of reliever medications that are recommended for use during these episodes, of which short acting beta-2 agonists and systemic corticosteroids are the established first line agents. When these medications fail, second line agents should be administered without delay since risk of mortality is high once the child progresses to respiratory failure. Careful dosing of medications and monitoring for side effects are important for successful management.

Keywords: Acute asthma, Children, Beta agonists, Corticosteroids, Anticholinergics, Magnesium sulphate, Aminophylline

Points to Remember

- Treatment of acute asthma exacerbations should target the bronchospasm as well as the underlying airway inflammation.
- Short acting beta-2 agonists and corticosteroids are the first line medications used.
- Whenever possible pressurized metered dose inhaler is the ideal device to deliver beta-2 agonists and in severe exacerbations when nebulizer is used, oxygen must be supplemented.
- Early initiation of systemic steroids reduces the need for hospitalization.
- Ipratropium, an anticholinergic bronchodilator can be considered along with short acting beta-2 agonists to improve their efficacy.
- Magnesium sulphate is more recognized as a second line agent in severe asthma exacerbation not responding to first line agents.

References

4. Lipworth BJ. Revisiting interactions between hypoxaemia and β2agonists in asthma Thorax 2001;56:506-507.


BODY IMAGE DURING ADOLESCENCE

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Abstract: Body image plays an important role in identity development during adolescence. It is influenced by pubertal changes and various psychological and socio-cultural factors. Negative body image during adolescence can be associated with risky behaviours and poor health outcomes. Pediatricians should screen for body image concerns and promote development of healthy body image during annual health visits. Referral to mental health specialist must be made when indicated.

Keywords: Body image, Adolescence, Screening.

Points to Remember

- Body image is dynamic perception of one’s body and is determined strongly by self-evaluation.
- Development of body image follows biopsychosocial model and body image disturbance can be associated with negative health outcomes.
- Adolescents should be screened for body image concerns during well visits with detailed history, HEEADSSS assessment and examination. SCOFF and EAT 26 are the common questionnaires used for screening. If indicated appropriate timely referral to a mental health specialist / Psychiatrist should be made.
- Promotion of healthy body image should be included as a part of the anticipatory guidance to all adolescents. It includes explaining the normal pubertal changes, encouraging to follow healthy life style, media education and mastering the life skills.

References

7. Soohinda G, Mishra D, Sampath H, Dutta S. Body dissatisfaction and its relation to Big Five personality...


CASE REPORT

LEFT VENTRICULAR NON-COMPACTION CARDIOMYOPATHY ASSOCIATED WITH CONGENITAL CYTOMEGALOVIRUS INFECTION

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** Shashank Sharma  
*** Neelam Singh

Abstract: Left ventricular-noncompaction cardiomyopathy, is a rare and new association with congenital cytomegalovirus infection. It is characterized by distinctive trabeculated or spongy appearing left ventricle associated with left ventricular hypertrophy and systolic/diastolic dysfunction. A 3 months old infant with bilateral cataract, severe respiratory distress and congestive heart failure is described herewith. Serum ELISA of cytomegalovirus (CMV) IgM and IgG were positive. Urine for CMV PCR was positive. Echocardiography revealed grossly hypertrophied noncompacted left ventricle with multiple trabeculations and global left ventricular hypokinesia with moderate tricuspid regurgitation and pulmonary hypertension.

Keywords: Left ventricular-noncompaction cardiomyopathy, Congenital CMV, Bilateral cataract.

References


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PAN OPHTHALMITIS - A RARE, YET PREVENTABLE COMPLICATION OF DENGUE INFECTION

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Abstract: Dengue fever, one of the most common mosquito borne flavivirus diseases affecting humans, spreads by Aedes aegypti mosquito. A small proportion have life-threatening forms such as dengue hemorrhagic fever and dengue shock syndrome. One of the complications in dengue that is being observed more frequently in recent times is the ophthalmic manifestation. Ophthalmic manifestations can involve both the anterior and posterior segment. However, only a few isolated case reports have been published so far.

Keywords: Dengue, Panophthalmitis.

References


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References


