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**TYPHOID FEVER - CURRENT SCENARIO**

*SSurendranath M*

**Abstract:** Typhoid fever is caused by a highly virulent organism *Salmonella enterica* serovar Typhi with a case fatality rate of 1% - 4%. In Indian subcontinent, incidence of typhoid fever is estimated to be more than 60 lakh cases per year. In many countries 27% of all cases occur in the age group of 0-4 years. Humans are the only known reservoir of *S*.*typhi* and transmission is through fecal-oral route. Though the blood culture done in the first week of illness is the gold standard for diagnosis, the sensitivity of blood culture is only 50%. Blood Widal test has poor positive predictive value but high negative predictive value. Multi drug resistant typhoid is reported in India while extremely drug resistant typhoid is reported in Pakistan since last few years. Recent reports in India suggest the susceptibility of *S*.*typhi* to first line of drugs and 100% to ceftriaxone. Improved sanitation, protected water supply, rational use of antibiotics and immunization with typhoid conjugate vaccine will reduce the disease burden.

**Keywords:** *Salmonella enterica* serovar Typhi, Enteric fever, Anti microbial resistance, Typhoid conjugate vaccine.

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**Points to Remember**

- Typhoid fever continuous to be an important public health issue in India with many reports of incidence of MDR typhoid.
- Though the blood culture is the gold standard in the diagnosis of typhoid, positive blood culture rates are low.
- Blood Widal test has high negative predictive value.
- Improving sanitation, hygiene and vaccination with typhoid conjugate vaccine may reduce the disease burden.

**References**


**BACTERIAL UPPER RESPIRATORY INFECTIONS - DIAGNOSIS AND MANAGEMENT GUIDELINES**

*Dhanalakshmi K  
**Lakshan Raj S*

**Abstract:** In children, upper respiratory infections are a leading cause of visit to pediatrician, mild morbidity and school absenteeism. Most of them are caused by viral infections and are self limiting, while bacterial infections account for a small percentage but need appropriate treatment. Upper respiratory infection is one of the most common conditions where antibiotics are prescribed inappropriately. Hence, a prompt diagnosis of bacterial upper respiratory tract infections is important for institution of early and appropriate antimicrobial therapy, thereby preventing complications. Judicious use of antibiotics will also help to reduce the cost, adverse effects and antimicrobial resistance.

**Keywords:** Acute otitis media, Acute bacterial rhinosinusitis, Pharyngotonsillitis, Croup, Epiglottitis.

**Points to Remember**
- Most of the upper respiratory tract infections are caused by viruses.
- Centor/McIssac score can be of help to differentiate viral and bacterial pharyngitis.
- Amoxicillin is the first line drug for acute otitis media, acute bacterial rhinosinusitis and Group A beta hemolytic streptococcus.
- Macrolides should be avoided for bacterial upper respiratory tract infections since there is a high degree of resistance.
- Avoid antibiotics for common cold, otitis media with effusion and croup.

**References**


MISSED INFECTIONS – BRUCELLOSIS, MELIOIDOSIS

*Jaydeep Choudhury

Abstract: With changing epidemiology, widespread travel of human population and better diagnostic modality, the hitherto rare infections are being detected more frequently. The missed infections are gaining more importance. Brucellosis and melioidosis are two such infections which are not commonly seen but should be suspected as they have overlapping clinical presentation with many other infectious diseases and are liable to be missed if not suspected.

Keywords: Zoonoses, PUO, Rare infections.

Points to Remember

- **Brucellosis** is acquired from direct contact or consumption of products of an infected animal.
- **Classical triad of brucellosis** is fever, arthralgia or arthritis and hepatosplenomegaly.
- **A combination antibiotic therapy of doxycycline-aminoglycoside** for at least 6 weeks should be used in all cases to prevent treatment failure and relapse.
- **Melioidosis** can be acquired by contact of abrasion or wounds with contaminated soil or water, inhalation of aerosols or dust particles containing organisms or ingestion of contaminated water or food.
- **Melioidosis** should be considered in a patient with travel to endemic area at any time and having fever of unknown origin, overwhelming sepsis, single or multiple abscesses.
- **In acute melioidosis**, ceftazidime or meropenem for 7 to 14 days is the treatment of choice.

References


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Chemoprophylaxis

*Suhas V Prabhu

Abstract: Chemoprophylaxis refers to the use of antibiotics in the prevention of infections and is an useful arm in the armamentarium to fight infections. It should be used only in select clinical situations where it has been shown to be effective. The clinical situation wherein it is recommended, the agents used, the doses required and the timing and duration of therapy are discussed.

Keywords: Antibiotics, Prophylaxis, Infections.

Points to Remember

- Chemoprophylaxis is an important weapon in the fight against infections.
- Antimicrobial chemoprophylaxis is useful only in very select clinical situations.
- One must follow the standard recommendations/guidelines for drug choices, doses and duration.
- Haphazard antimicrobial use for prophylaxis is not effective and can actually worsen the situation.

References


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CARE BUNDLE FOR PREVENTION OF ICU ACQUIRED INFECTIONS

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**Suchitra Ranjit

Abstract: Bundle is a collection of evidence based medical practices that help in improving outcome. Care bundles contribute to infection prevention, reduce unnecessary antibiotic usage and may limit the development of antibiotic resistance. Hand hygiene and aseptic techniques are important elements of any care bundle. The components of ventilator associated pneumonia bundle aim to prevent micro-aspiration, colonization of upper airway and gastrointestinal tract with potentially pathogenic organisms and contamination of ventilator circuit. The components of catheter associated infection prevention bundle aim to prevent extraluminal transmission of microorganisms from patient’s skin and intraluminal transmission via direct contamination of the catheter or tubing. Care bundles are relatively easy to develop and implement in hospital set up using Plan-Do-Study-Act model with help of a team member identified as a bundle champion.

Keywords: Bundle, Ventilator associated pneumonia prevention bundle, Central line care bundle, Catheter associated urinary tract infection prevention bundle, Plan-Do-Study-Act cycle

Points to Remember

- Each and every component of care bundle is vital for achieving the desired outcome.
- Bundles contribute to infection prevention, reduce unnecessary antibiotic usage and may limit the development of antibiotic resistance.
- Pediatric ventilator bundle consists of head end elevation, daily assessment for readiness to extubate, daily oral care, ventilator circuit care and suctioning precautions.
- Central line care bundle includes hand hygiene, maximal barrier precautions, chlorhexidine for skin preparation, transparent dressing and prompt removal of the catheter.
- Routine antibiotic prophylaxis and routine replacement of central line or urinary catheter is not recommended.

References


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SUPERBUGS

*Dhanya Dharmapalan

Abstract: Superbugs have emerged among the microbes through the evolution of “survival of the fittest”, the speed of this evolution being fuelled by injudicious use of antibiotics in humans and animals. These are multidrug resistant microbes against which the effectiveness of antibiotic armamentarium is limited and cause increased mortality and morbidity. Multidrug resistant Acinetobacter baumannii and Carbapenemase producing Klebsiella pneumonia are the leading superbugs among Gram negative bacteria whereas drug resistant staphylococcus species, enterococcus, Streptococcus pneumoniae are the common Gram positive superbugs. Superbug forms of Salmonella typhi and Mycobacterium tuberculosis pose a great public health challenge for elimination. Treatment of these infections should be preferably guided by experts in infectious diseases and good infection control practices. An efficient antibiotic stewardship and infection control practices seem to be our only hope to buy time in the battle against these superbugs.

Keywords: Superbugs, Antibiotic resistance, Infection control, Carbapenemases, Methicillin resistant Staphylococcus aureus.

Points to Remember

• Superbugs are multidrug resistant microbes whose evolution is being hastened with irrational antibiotic use and poor infection control practices.

• Superbugs which are increasingly encountered are multidrug resistant Acinetobacter baumannii, carbapenemase producing Klebsiella pneumoniae, vancomycin resistant enterococcus (VRE), vancomycin resistant Staphylococcus aureus (VRSA), XDR salmonella, MDR and XDR tuberculosis.

• The antibiotic options to infections by superbugs are extremely limited and should be treated preferably with the help of infectious disease experts and microbiologists.

• Antibiotic stewardship and infection control are essential to control the rise of dangerous population of superbugs.

Acknowledgement: I thank Dr. T. Jacob John, retired Professor, CMC Vellore for his review inputs.

References


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ANTIMICROBIAL RESISTANCE IN INDIA

* Tanu Singhal

Abstract: Antimicrobial resistance is projected to kill 10 million people by 2050. The biggest driver of antimicrobial resistance is irrational/unrestricted use of antimicrobials in humans and animals. Antimicrobial resistance is a problem in all types of pathogens including bacteria, mycobacteria, viruses, fungi and parasites in both India and in the world. However the biggest concern for India is the resistance in gram negative pathogens and Mycobacterium tuberculosis. The alarming rate of extended spectrum beta lactamase production in enterobacteriaceae in both community and health care associated infections is driving carbapenem use. Rates of carbapenem resistance are now significantly high in health care associated gram negative pathogens including E. Coli, Klebsiella pneumoniae, Pseudomonas aeruginosa and Acinetobacter baumannii with associated mortality rates of 50%. The epidemic of multidrug resistant and extremely drug resistant tuberculosis in India is a public health calamity. The key solution to this antimicrobial resistance crisis lies in promoting rational antimicrobial therapy and exercising antimicrobial stewardship.

Keywords: Antimicrobials, Resistance, India, Stewardship

Points to Remember

• Antimicrobial resistance compromises treatment of infections and is associated with increased morbidity, mortality, adverse effects and cost of therapy.
• AR is fuelled largely by irrational use of antimicrobials in both humans and animals.
• AR in gram negative bacteria through production of extended spectrum beta lactamase (ESBL) and carbapenemases is alarming in the Indian health care setting.
• AR in S. pneumoniae to penicillins and cephalosporins is emerging, forcing change in empiric regimens for acute bacterial meningitis.
• MDR and XDR in M. tuberculosis is a big hurdle in the elimination of tuberculosis from India.
• The impact of resistance in other pathogens including Candida, influenza, HIV and malaria should not be forgotten.

References


NEWER ANTIBIOTICS - USE IN PEDIATRIC PRACTICE

*Jeeson C Unni  
** Ranjit Baby Joseph

Abstract: There are few trials assessing the use of newer antibiotics in the neonates and children. The reality strikes that 50 times more studies are being conducted in adults than in children; 177 and 580 times more in adults than in neonates and preterm babies, respectively. Though there are 2-5 new drugs being introduced for each group of antibiotic, only 2 antibiotics - carbavance and solithromycin - have been investigated in 1 and 2 ongoing clinical trials respectively in pediatric patients.

Keywords: Newer antibiotics, Drug resistance, Pediatric trials.

Points to Remember

- About 41 new antibiotics are in development.
- Only about 60% of drugs that enter phase III end up getting approval and based on the pipeline analysis is very clear that there are not enough new drugs that are available to patients.
- Although the bacterial resistance is developing rapidly newer antibiotics in pipeline provides us some hope; and we need more research in this regard in neonates, children and adolescents.
- Judicious use of the antibiotics is the need of the hour to present rapid development of extensive drug resistance.

References


34. Zhanel GG, Lawrence CK, Adam H, Schweizer F, Zelenitsky S, Zhanel M, Lagacé-Wiens PRS, Walkty A,


**Amazing Interaction of Vitals – Organ Cross Talk**

*Subramanyam L*

**Abstract:** Air, water and energy are essential for sustaining life. Different systems, organs and tissues of the body function together to maintain homeostasis. The main function of the respiratory system is ventilation, oxygenation and acid base balance. Breathing is controlled by complex mechanisms involving respiratory centres, central and peripheral chemoreceptors. The function of the circulatory system is to provide adequate oxygen and nutrients to meet the metabolic demand of the tissues. The role of kidney is filtration, reabsorption, secretion, excretion as well as volume and osmoregulation, where as nutrition and energy is regulated by the gastrointestinal system. To maintain homeostasis all systems of the body are interacting with each other which can be assessed by the vital signs.

**Keywords:** Vital signs, Ventilation, Perfusion, Oxygenation. Circulation, Energy

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**Points to Remember**

- **Oxygen requirement is 5 ml / Kg/min.**
- **Normal healthy person of 50-60 kg needs 250- 300ml of O2/ min for which tissue receives 5-6 litres of cardiac output/ min**
- **Alveolar volume: stroke volume is 4:1 , that is why RR: HR is 1: 4**
- **MAP is a better indicator for organ perfusion than systolic pressure.**
- **Normal urine output is 1 to 2 ml /Kg/hr.**
- **To arrive at normal fluid and calories requirement Holliday Segar formula is used.**
- **Oxygen consumption is lowest at neutral thermal environment**

**Bibliography**


STEROID MODIFIED DERMATOPHYTOSIS IN CHILDREN - AN UPDATE

*Madhu R

Abstract: Superficial dermatophytosis has evolved as a difficult to treat, chronic, recurrent, widespread recalcitrant infection and has emerged as a major public health problem in our country over the last 5-6 years. Current scenario of dermatophytosis is considered to be due to factors relating to environment, host, etiological agents and antifungal resistance with the most important factor being the rampant abuse of topical steroid antifungal/antibacterial combination creams procured by patients over the counter or as prescribed by practitioners. Potent steroid molecules in the combination cream cause local immunosuppression, barrier dysfunction and increase multiplication of the dermatophytes resulting in persistent infection. The term 'Steroid modified dermatophytosis’ is used when the clinical morphology of dermatophytosis can be recognised in spite of application of topical corticosteroids. The term ‘Tinea incognito’ refers to the situation in which the clinical morphology is so altered that dermatophytosis is unrecognizable, due to the application of topical corticosteroid creams or use of systemic steroids. Clinical morphology, adverse effects, approach to a patient with steroid modified dermatophytosis and management strategy have been discussed.

Keywords: Steroid modified dermatophytosis, Tinea incognito, Local immunosuppression, Tinea pseudoimbricata.

Points to Remember

• Steroid modified tinea is on the rise among the children.
• Clinical morphology of dermatophytosis may be recognizable in steroid modified tinea but is unrecognizable in Tinea incognito.
• Direct microscopy in 10% potassium hydroxide has to be done in case of clinical suspicion.
• Immediate cessation of combination containing topical steroid / antifungal/ antibacterial cream is the first step.
• Counseling regarding the compliance and strict adherence to general measures will play a pivotal role in the successful outcome.
• Reversal of immune response takes about 3 weeks after stopping the steroids and hence the initial slow response or lack of response in the first few weeks.
• Persistence of infection due to local immunosuppression warrants a longer duration of treatment.

References

4. Verma SB. Sales, status, prescriptions and regulatory problems with topical steroids in India. Indian J Dermatol Venereol Leprol 2014; 80:201-203.


DISORDERS OF GLANS AND PREPUCE

*Sushmita Bhatnagar

Abstract: An understanding of normal anatomy and function of the parts of the phallus is important to interpret the pathophysiology of the several conditions/diseases of the phallus. This article describes the normal and abnormal status of the phallus in children and discusses the ideal management of the different conditions, involving glans and prepuce such as balanitis, balanoposthitis, phimosis and paraphimosis.

Keywords: Phallus, Balanitis, Balanoposthitis, Phimosis, Paraphimosis.

References


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ANGRY ADOLESCENT

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Abstract: Anger is common in adolescence. Anger outbursts may present for the first time in adolescence or may be a part of the continuum since childhood. It can lead to aggression, violence, high risk behavior, crime and death. It has many causes. A thorough clinical evaluation is essential to make a precise diagnosis and plan further management. A multidisciplinary team involving pediatrician, parents, teacher and mental health professional is required for appropriate management.

Keywords: Specific learning disability, Attention deficit hyperactivity disorder, Oppositional defiant disorder, Screening for childhood anxiety related emotional disorders.

Points to Remember

- Anger is a common behavioural in adolescence.
- Uncontrolled anger can lead to aggression, violence, crime and death.
- Causes of anger are multi factorial.
- Frequent anger outbursts are pointers towards mental disorders.
- Pediatricians should provide anticipatory guidance regarding anger management.
- Evidence based anger management programs for adolescents that include parents are effective.

References


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SKIMMED BREAST MILK IN THE MANAGEMENT OF IDIOPATHIC CONGENITAL CHYLOTHORAX

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***Siddartha Buddhavarapu

Abstract: Conservative management of congenital chylothorax involves intercostal drainage, low fat infant formula and somatostatin infusions. Availability and cost of low fat infant formulas is a limiting factor in developing countries. A preterm male diagnosed antenatally with non-immune hydrops fetalis was postnatally diagnosed to have congenital chylothorax. He was given fat free breastmilk prepared by removal of fat layer after centrifugation, and fortifying with simyl MCT oil. There was good response to fat free breast milk with resolution of chylothorax. Breast milk can be centrifuged with locally available equipments and can be a good alternative to low fat infant formulas in congenital chylothorax.

Keywords: Chylothorax, Non-immune hydrops, Skimmed milk, Breastfeeding.

References

FAILURE TO THRIVE IN A YOUNG CHILD
- A RARE CAUSE

*Sumathi B
**Nirmala D
***Sunil Kumar KS

Abstract: Failure to thrive in children has heterogeneous causes and needs extensive evaluation based on clinical symptoms and signs. We report a rare cause of failure to thrive in a young child due to abetalipoproteinemia.

Keywords: Fatty liver, Abetalipoproteinemia, Small intestinal biopsy, Children.

References


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