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THE WHO MULTICENTRE GROWTH CHARTS

*Anuradha Bose

Abstract: Growth charts were already in use and several countries, including India, had local growth charts. In the early 2000s, the WHO undertook the task of creating a multicountry growth reference standard. The aim was to create a set of standards, based on the growth of breast fed babies, as these babies were likely to represent how babies should grow. The WHO Multicentre Growth Reference Study (MGRS) was carried out between 1997 and 2003. A standard defines how children should grow, deviations from the pattern it describes are evidence of abnormal growth. A reference, on the other hand just provides and serves as a tool for comparison. The MGRS data provide a solid foundation for developing a standard because they are based on healthy children living under conditions likely to favour achievement of their full genetic growth potential. A cross-sectional design was adopted for children aged 18 to 71 months, as growth in this age range is more linear than for younger children. The WHO recommends the application of the MGRS charts for all children worldwide, regardless of ethnicity. Several countries have officially adopted the new standards and many others are in the process of doing so. Adopting and applying these standards will enable direct comparisons of the state of nutrition of under-5 children across nations, and provide comparable estimates of the levels of malnutrition. The 5 to 19 year charts can help in building up data on the creeping epidemic of childhood obesity in India.

Keywords: MGRS-Growth charts, Standard.

Points to Remember

• Growth standard is a basis for comparison and deviations from the pattern it describes are evidence of abnormal growth.

• To develop a growth chart or standard, children are selected from those living under favourable conditions. Mothers of these children should follow health promoting practices such as breast feeding.

• MGRS chart is developed, based on data collected from cities across six countries, from children brought up in favourable environment.

• New growth charts covering 5-19 year age group have been constructed to detect problems including excess weight.

• For monitoring the growth of a child, weight should be estimated at birth, then every 2 weeks until 2 months of age, thereafter every month till 24 months. After that weight should be checked 6 monthly from 24 to 60 months. Length / height should be measured at birth, repeated at 2 and 6 months and 6 monthly up to 60 months.

References


MANAGEMENT OF LATE PRETERM INFANTS

*Giridhar S

Abstract: Late preterm infants range in gestational age from 34 0/7 to 36 6/7 weeks and are at greater risk of morbidity, such as respiratory complications, temperature instability, hypoglycemia, jaundice, feeding problems, neonatal intensive care unit admissions, mortality and adverse neurological sequelae when compared with term infants. They represent 75% of preterm birth and are the fastest growing subgroup of preterm infants. There is an urgent need to educate health care providers and parents about the vulnerability of late preterm infants, who are in need of diligent monitoring and care during the initial hospital stay and a comprehensive follow-up plan for post-neonatal and long-term evaluations.

Keywords: Premature infant, Respiratory distress syndrome, Neonatal jaundice, hypoglycemia, Mortality.

Points to Remember

- Late-preterm infants are immature.
- Infants born at 34 0/7 through 36 6/7 weeks gestation (239–259 days since the first day of the last menstrual period) should be referred to as “late preterm.”
- Late-preterm infants are physiologically immature and have limited compensatory responses to the extraterine environment compared with term infants.
- Late-preterm infants are at a greater risk of morbidity and mortality than are term infants.
- During the birth hospitalization, late-preterm infants are more likely than are term infants to be diagnosed with temperature instability, hypoglycemia, respiratory distress, apnoea, jaundice, infections, feeding difficulties or mortality.
- During the first month after birth, late-preterm infants are more likely than term infants to be rehospitalized for jaundice, feeding difficulties, dehydration, and suspected sepsis.
- Collaborative counseling by both obstetric and neonatal clinicians about the outcomes of late-preterm births is warranted unless precluded by emergent conditions.
- Appropriate discharge criteria and comprehensive follow-up plan needs to be implemented for this special population if infants.

References


FEEDING DISORDERS IN INFANTS: 6 TO 24 MONTHS
*Sathiyasekaran M

Abstract: Pediatric feeding disorders are challenging problems encountered commonly in day to day practice. 25% of normal children present with a mild disorder which increases to 80% in children with developmental delay. The etiology is multifactorial comprising of medical, nutritional, behavioral, psychological and environmental causes. Feeding disorders should be conceptualized as a bio-behavioral problem, a continuum between psycho-social and organic factors. The clinical spectrum includes food selectivity, food refusal, excessive meal duration, dysphagia, choking, vomiting and inappropriate mealtime behaviors. Nutritional and cognitive impairment, growth failure, susceptibility to chronic illness and even death may occur as a result of this disorder. Assessment and treatment are best conducted by an interdisciplinary team including a pediatrician, gastroenterologist, nutritionist, behavioral psychologist and occupational and/or speech therapist.

Keywords: Feeding disorder, Bio-behavioral, Interdisciplinary team.

Points to Remember

• Feeding disorders in young infants are common.
• Etiology is multifactorial and may be a combination of medical and behavioral.
• Symptoms range from food selectivity, vomiting to complete food refusal.
• Majority resolve but some may persist resulting in in cognitive impairment, emotional dysfunction, malnutrition and growth retardation.
• Assessment and management of complex disorder is best done by a multi disciplinary team.

References

NEPHROTIC SYNDROME IN CHILDREN–AN UPDATE

*Sangeetha G  
*Shweta Priyadarshini  
**Vijayakumar M

Abstract: The commonest type of nephrotic syndrome seen in children is idiopathic nephrotic syndrome. Dysregulation of T cells was considered as the cause for proteinuria in earlier days. But better understanding of the molecular mechanisms lead us to think about various emerging new theories about proteinuria. Hypothesis about the mechanism of edema is also changing, with more focus on tubular epithelial sodium channels and others. Evaluation, management and complications are very specific in childhood nephrotic syndrome.

Keywords: Nephrotic syndrome, Diuretic resistance, Steroid sparing drugs, Rituximab, Stress therapy.

Points to Remember

• Most common cause of nephrotic syndrome in children is idiopathic nephrotic syndrome.

• Though it is called idiopathic, various pathogenetic mechanisms for proteinuria include dysregulation of T cells, genetic mutations, circulating permeability factors and aberrant cross talk between B and T cells.

• Overfill hypothesis of edema formation is supported by activation of tubular ENaC.

• Nephrotic edema should be treated cautiously with appropriate diuretics either alone or in combination with serial monitoring of electrolytes and other adverse effects.

• Nephrotic syndrome should be treated adequately with corticosteroids both in terms of dosage and duration.

• In case of relapse, adequate treatment of infection may result in spontaneous remission.

• Low dose steroid is always co-administered with steroid sparing drugs in the initial period of treatment of FRNS and SDNS.

• All steroid sparing drugs have their own benefits and adverse effects. Hence serial monitoring to look for adverse effects should be stressed.

• Rituximab, a novel genetically engineered anti CD-20 monoclonal antibody which selectively targets CD20-positive B cells is useful in difficult SDNS and SRNS.

• Parents of nephrotic syndrome children should be counselled regarding the need for vaccination, especially pneumococcal vaccination when the child is in remission.

• In children with risk of suppression of hypothalamic pituitary adrenal axis should get stress dose of steroids during the period of stress if they have received steroids in the past one year.

• Complication due to disease and drugs per se should be addressed as early as possible in children with nephrotic syndrome to prevent the adverse consequences.

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NOISY BREATHING

Abstract: Although the clinical utility of the respiratory noises is often assumed, unfortunately, distinguishing these noises from each other can be very difficult. Many children will have multiple noises, as the obstruction to airway is often extensive (e.g., inflammation involving both upper and lower airways), the noise may vary from minute to minute, and some noises may not clearly fit into any one of these simple descriptors. This difficulty in categorizing the noise is worse when the noise is intermittent described by the child’s parent and not confirmed by the clinician. Another problem is intra-observer reliability i.e. whether the clinician will agree with himself when observing the same sign on two separate occasions. Further agreement between clinicians on the terminology of these noises is far from perfect. The purpose of discussion is to analyse the validity and reliability of these noises and emphasize their subsequent clinical relevance and diagnostic significance.

Keywords: Noisy Breathing, Stridor, Wheeze, Snore, Rattle.

Points to Remember

• When the parents report about respiratory noises, it is the duty of pediatrician to confirm.

• Many infants with parent reported wheezes, have a “rattle” rather than wheeze.

• A major error is misclassifying stridor as a wheeze and missing significant upper airway obstruction.

• Audio or video recording of respiratory noises is helpful to discuss with parents in day-to-day practice.

• Time spent in eliciting the history is worth than ordering investigations without clinical clues.

Bibliography

TROPICAL INFECTIONS IN THE PICU

* Prabhudesai S
** Ramachandran B

Abstract: Tropical infections often cause life threatening illness requiring PICU admission. Diagnosis may be difficult in critically ill children. Severe dengue presents with third-spacing, shock, hemorrhage and organ impairment requiring fluid resuscitation and sometimes, blood transfusion. Malaria often causes complications (cerebral malaria, hypoglycemia, anemia, hyperparasitemia) having a high mortality if not treated promptly. Scrub typhus may cause shock, ARDS and renal failure and can mimic dengue. Outcome is good with specific therapy. Icteric leptospirosis causes jaundice, renal failure and hemorrhage, and residual renal and visual impairment may result. Multi-organ dysfunction is common in these infections needing ventilation, hemodynamic support and dialysis.

Keywords: Tropical infections, Dengue, Malaria, PICU

Points to Remember

* The specific diagnosis of tropical infections can be challenging especially in the PICU
* Severe dengue is a potentially fatal illness but can be treated effectively with early fluid resuscitation. Early recognition of warning signs, shock, hemorrhage and fluid overload are important.
* Severe malaria may be difficult to differentiate from dengue, scrub typhus, bacterial sepsis, pneumonia and meningitis. Repeated microscopy and rapid antigen testing may aid diagnosis. Prompt antimalarial therapy is essential to prevent mortality.
* Scrub typhus may clinically resemble severe dengue. Absence of hemoconcentration, prolonged prothrombin time (compared to partial thromboplastin time) and the presence of an eschar demarcating the chigger bite are distinguishing features.

The icteric form of leptospirosis (Weil’s disease) can cause jaundice, renal failure and pulmonary hemorrhage. Hemodialysis and mechanical ventilation are often necessary.

References

ABDOMINAL PAIN – MEDICAL OR SURGICAL?

*Senthilnathan R

Abstract: The first step in evaluation of abdominal pain in children is to differentiate surgical and medical conditions. Prompt identification of the etiology is important in the successful management of the case. An insight into the approach to the child with abdominal pain is discussed here.

Keywords: Acute abdomen, Surgical causes.

Points to Remember

• Bilious emesis, focal tenderness, guarding and X ray revealing small bowel dilatation indicate surgical cause of abdominal pain.

• Change of pattern and persistence of symptoms warrant further evaluation for surgical causes.

• Laparoscopy has an important role in the evaluation and management of abdominal pain.

References


* Professor of Pediatric Surgery,
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ANTIBIOTIC RESISTANCE – PREVENTIVE STRATEGIES

*Suresh Kumar D

Abstract: Antimicrobial resistance is recognized as one of the great threats to human health worldwide. The discovery of antibiotics seven decades earlier fundamentally transformed the way physicians care for patients, shifting their approach from a focus on diagnoses without treatment to a treatment-focused approach that saves lives. Seven decades of medical advances achieved by antibiotics are now seriously threatened by the convergence of relentlessly rising antibiotic resistance and the alarming and ongoing withdrawal of pharmaceutical companies from the antibiotic market with dry antibiotic pipeline. Without antibiotics, diverse fields of medicine will be severely hampered, including surgery, the care of premature infants, cancer chemotherapy, care of the critically ill and transplantation medicine, all of which are feasible only in the context of effective antibiotic therapy. The optimum solution to tackle the problem of antibiotic resistance remains investment in the infrastructure required to reduce the burden of infectious diseases. However, in the short term the best approaches rely on increasing awareness about antibiotic misuse, developing standard treatment guidelines for practitioners in different settings, restricting the choice of antibiotics, and providing feedback to practitioners on local patterns of resistance. In this article we are exploring how to tackle this global crisis locally.

Keywords: Antibiotic resistance, Problem tackling.

Points to Remember

• Before writing antibiotic, write diagnosis and if you want to use antibiotic use maximum dose for minimum period.
• Involve specialists in the management of difficult to treat/multidrug resistant infections.

References

NEUROIMAGING OF THE PEDIATRIC BRAIN – A PICTORIAL REVIEW OF MR IMAGING STRATEGIES

*Gopinathan K

Abstract: Magnetic resonance imaging of pediatric brain is nowadays routinely used as imaging method of choice for the detection of morphological and functional changes of the brain. The advent of fast sequences, which allow high signal-to-noise, high-resolution datasets has facilitated standardized and reliable protocols for MRI to be acknowledged as a valuable tool in many paediatric centers. This review covers technical requisites, sequence details, and provides a practical approach for routine diagnosis of normal myelination and its imaging pitfalls. The characteristic imaging findings of various pediatric brain disorders which includes congenital malformations, arteriovenous malformations, paediatric stroke, tumours and tumour related issues and neuro infections are briefly discussed. Finally a brief note of MR spectroscopy in normal pediatric brain and its pivotal role in various clinical challenges is discussed.

Keywords: MRI, Spectroscopy, MR Angiography, MR Venography, Pediatric brain.

Points to Remember

MRI plays vital role in

• Characterisation of congenital anomalies accurately.

• Prognostication of hypoxic ischemic encephalopathy using DWI & Spectroscopy

• Prompt diagnosis of pediatric stroke and exclusion of stroke like lesions with the help of DWI.

• Differentiation of various infections so that targeted therapy could be instituted.

• Make evaluation of various pediatric leucodystrophies simple.

For further reading

2. MRI of the Neonatal Brain, Mary A Rutherford. (ed).
LITERATURE SEARCH USING PUBMED

*Naresh P Shanmugam  
**Subashini P

Abstract: Literature search is an essential tool for evidence-based practice. It is difficult to get the right answer unless the right question is asked. While performing literature search unless the right question is asked, the search will not bring out appropriate articles. This article deals with basic methods involved in performing literature search using PubMed.

Keywords: PubMed, MEDLINE, MeSH

Points to Remember

• Unless right question is asked, web search will only yield incomplete search results.
• Need to understand Boolean logic operators and use them appropriately during literature search.
• While writing paper/thesis it is essential to quote exactly how the search was performed so that it could be reproduced by a different operator.

For further reading


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MEDICO LEGAL APPROACH TOWARDS VICTIMS OF SEXUAL OFFENCE

*Garudadhri GV

Abstract: Sexual offences against children are increasing enormously in recent years. A pediatrician/medical practitioner would often come across such cases. It may be cumbersome for the practitioner to deal with such cases, as there may be confusions regarding medico-legal management, right from informing the police and testifying as expert witness in the Court of Law. For this, basic knowledge about the sexual offences and its approach is essential. A simple approach is given when one encounters a child victim of sexual offence.

Keywords: Sexual offences, Medical approach.

Points to Remember

- Medical examination should be carried out as per the laid down procedure, necessary evidence has to be preserved and important details should be documented.
- The doctor coming across such a case, has to report to the special juvenile police unit or local police.
- Necessary treatment and counselling has to be provided taking the help of other specialists.

References


* Senior Resident,
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HOW TO CARE FOR LOW BIRTH WEIGHT BABY AT HOME?

*Rhishikesh Thakre
**Patil PS

Abstract: Care of the low birth weight baby at home is a challenge. With proper training and supervision, low birth weight newborn care can be done well in home settings leading to improvement in survival and health seeking behavior. Fundamentals of such a care include early recognition, prevention and treatment of common neonatal problems. The components of home based care are health education, provision of essential newborn care - breast-feeding, thermal care, hygiene, monitoring for any infection, early recognition of illness, provision of emergency care and early referral. Home based care is complementary to facility based care, a must in “chain of survival” and a continuum of care from home to hospital.

Keywords: Low birth weight, Home based care, Essential newborn care

Points to Remember

- Nearly all essential newborn care can be provided safely, effectively and at low cost at household level.
- Fundamentals of LBW care include recognition, prevention and treatment of common problems.
- The basic components of LBW care at home are a) Increased attention to keeping the newborn warm, including skin-to-skin contact with the mother; b) assistance with initiation of breastfeeding, expressing breast milk if the baby is not strong enough to suckle, c) extra attention to hygiene, especially hand washing; d) extra attention to danger signs and the need for early care seeking and referral; and e) periodic home visits for wellbeing surveillance and monitoring growth.
- Providing basic care to LBW newborn at home has been identified as a critical intervention that helps in preventing newborn deaths.

References

USE OF ANTI-INFLAMMATORY DRUGS

*Jeeson C Unni

Abstract: Nonsteroidal anti-inflammatory drugs (NSAIDs) possess antipyretic, analgesic and anti-inflammatory effects. They are frequently used in children and have numerous therapeutic indications, the most common ones being fever, postoperative pain and inflammatory disorders, such as juvenile idiopathic arthritis (JIA) and Kawasaki disease. This article deliberates on the development of NSAIDs over the years, their indications in children, adverse effects and guidelines for choosing one NSAID over another.

Key words: Anti inflammatory drugs, NSAIDs, COX-1 inhibitor, COX-2 inhibitor

Points to Remember

• There is very little difference in the anti-inflammatory effect of various NSAIDs.

• Anti-inflammatory effect may not manifest/ not be clinically demonstrable even after 3 weeks.

• Ibuprofen combines anti-inflammatory, analgesic, and antipyretic properties. It has fewer side-effects than other NSAIDs but its anti-inflammatory properties are weak.

• Naproxen combines good efficacy with a low incidence of side-effects.

• Diclofenac is similar in efficacy to naproxen.

• Indomethacin has an action equal to or superior to that of naproxen, but with a high incidence of side-effects.

• Meloxicam and Etoricoxib are the only 2 selective inhibitors of cyclo-oxygenase-2 that have been licensed for use in adolescents.

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TOPOCAL STEROIDS

*Vijayabhaskar C

Abstract: Topical steroid is the most commonly prescribed medicine in dermatological conditions by virtue of its anti inflammatory and anti proliferative properties. Sometimes topical steroids are abused by practitioners and patients but most often they are underutilized. Potent steroids should not be used in children as the larger surface area results in increased absorption. Appropriate potency of steroids in appropriate concentration should be used in the appropriate areas of the body to enhance the efficacy and to minimize the adverse effects. Quantity of steroids that is to be applied is measured by finger tip units. Frequency of use and duration of application of topical steroids play a major role in determination of the adverse effects. FDA guidelines should be followed in using the topical steroids so that maximum benefit could be achieved.

Key words: Topical steroids, Potency, Finger tip unit.

Points to Remember

- Always choose mid potent to low potent steroid to control the steroid responsive dermatoses in children.
- Use the least potent steroids to control the disease.
- Use a particular steroid for 2 weeks and if necessary for a period not exceeding 4 weeks.
- Select a steroid which is approved for that age group.
- As far as possible try to calculate the dose of topical steroid in finger tip units and explain to the parents the equivalent of it in their understandable language.

- Educate the parents about good effects of topical steroids if used properly. If a steroid responsive dermatosis is infected, first control the infection with topical/oral antibiotics and start on topical steroids.

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CASE STUDY

RIGHT VENTRICULAR OUTFLOW TRACT ECTOPICS IN COUPLETS IN A 6-YEAR-OLD CHILD

*Suganthi V
**Saminathan D
***Balasubramanian T

Abstract: Ventricular arrhythmias can occur in children with normal heart. Idiopathic monomorphic ventricular arrhythmias commonly arise from the right ventricular outflow tract. One form of such arrhythmias is the frequent ventricular premature complexes. The prognosis of outflow tract arrhythmias is generally favourable, but there is a potential to develop tachycardia induced cardiomyopathy.

Keywords: Cardiac arrhythmias, Ventricular premature complexes, Right ventricular outflow tract.

References


CASE STUDY

SPONTANEOUS PERFORATION OF THE BILE DUCT IN AN ADOLESCENT - AN UNUSUAL COMPLICATION OF CHRONIC CALCIFIC PANCREATITIS

* Sumathi B
** Venkatchalam A
*** Nandhini G
**** Sathiyasekaran M
***** Ramakrishnan M
****** Jayanthi V

Abstract: Spontaneous perforation of common bile duct (SPBD), an unusual cause of acute abdomen presenting as biliary ascites is very rare. The aetiology of SPBD is multifactorial and include congenital mural weakness of the common bile duct, ischemia, distal biliary obstruction, pancreaticobiliary malunion, infection, trauma and rarely acute or chronic pancreatitis. Diagnostic ascitic tap helps in diagnosis. We report an adolescent with chronic calcific pancreatitis who had spontaneous perforation of bile duct and was managed by therapeutic endoscopic retrograde cholangio pancreatography (ERCP).

Key words: CCP, Adolescent, SPBD, Biliary ascites.

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