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IAP-IJPP CME 2015**GLOBAL INITIATIVE FOR ASTHMA 2015
GUIDELINES – WHAT IS NEW?*****Kalpana S**

Abstract: *This article provides a summary of key changes in the GINA 2015 report and their rationale. The changes include a revised asthma definition, tools for assessing symptom control and risk factors for adverse outcomes, expanded indications for inhaled corticosteroid therapy, revised recommendations about written asthma action plans, diagnosis in wheezing pre-school children and management of acute exacerbation.*

Keywords: *GINA, Asthma, Children.*

Points to Remember

- *Confirm diagnosis of asthma in patients presenting with respiratory symptoms, using specific lung function tests, preferably before commencing treatment, and document the basis of the diagnosis in the patient's medical records.*
- *Asthma control is assessed from two domains: symptom control and risk factors.*
- *Lung function is no longer included among symptom control measures, but after diagnosis it is used primarily for initial and on-going risk assessment.*
- *Before considering any step-up, check diagnosis, inhaler technique and adherence.*
- *Low-dose budesonide/formoterol as maintenance and reliever therapy has been recommended in older children and adults.*

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IAP-IJPP CME 2015

WHO DENGUE GUIDELINES—A COMPARATIVE ANALYSIS AND VIEWPOINT***Thangavelu S**

Abstract: Ever since the first guidelines for dengue were released by World Health Organization in 1975 and a revised second edition in 1997, a lot of progress has happened in understanding the evolution of the disease, case classification, laboratory investigation and management. In the last four decades dengue infection has also spread to larger population causing widespread mortality and morbidity. WHO has reviewed and released protocols periodically for the management of dengue illness. A revised guideline issued by WHO TDR (research and training in tropical diseases) in 2009 has captured the attention of many health care workers as it proposed a simple and practical classification. This has suggested a classification distinctly different from the original classification promulgated in 1997 and later followed up in 2011 and 2014 Indian National guidelines. To sort out the differences and the applicability of the revised 2009 guidelines, a comparative analysis has been done in this article.

Keywords: WHO guidelines, Revised dengue guidelines, Comparative analysis

Points to Remember

- *WHO has periodically released many guidelines in association with other academic groups. But lack of uniformity has raised confusion and concerns in the minds of health care workers particularly between original 1997 and revised 2009 WHO guidelines.*
- *Revised 2009 WHO guidelines is simple to follow and has good applicability in classification.*
- *But continuous research and discussion between various experts to standardize a uniform protocol based on evidence is the need of the hour.*
- *The revised 2009 guidelines are very useful clinically for diagnosis, classification and case management while the handbook for clinical management of dengue 2012 is also a good source of teaching materials with case studies.*

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FEEDING OF LOW BIRTH WEIGHT NEONATES – EVIDENCE BASED RECOMMENDATIONS***Aparna Chandrasekaran**

Abstract: *Nutrition plays a vital role and determines immediate survival as well as subsequent growth, neuro-development and cardiovascular health in preterm low birth weight infants. These neonates have unique nutritional demands, difficulty in tolerability of enteral nutrition, exaggerated metabolic losses, as well as immature metabolic pathways, which make them vulnerable to nutritional failure. This review focuses on enteral nutritional needs of low birth weight babies and the measures to optimize and achieve ideal nutritional practices.*

Keywords: *Nutrition, Low birth weight, Enteral feeding*

Points to Remember

- *Nutrition of low birth weight neonates is an area which witnesses wide variability in clinical practice.*
- *Having a standardized feeding regimen decreases the risk of necrotising enterocolitis by 87%, shortens the time to reach full feeds and to regain birth weight.*
- *The initial feeding technique must be based on gestational age at birth and assessment of feeding skills of the individual neonate – In general, neonates born beyond 34 weeks can feed directly from the breast, while neonates born between 32 to 34 weeks feed from a paaladai or cup/ spoon and those neonates born between 28 to 31 weeks require tube feeding.*
- *Minimal enteral nutrition should be initiated in every stable preterm neonate as soon as possible. It can stimulate gut motility and gastrointestinal hormone release without increasing the risk of developing NEC.*
- *Progressive enteral feeds can be safely initiated early (less than 24 to 72 hours) and advanced at 20-30 mL/kg/day.*
- *It is preferable to use HMF added to expressed breast milk in all very preterm VLBW neonates on reaching 100 mL/kg/day of enteral feeding.*
- *There is a role of vitamin D and iron supplementation in all low birth weight neonates*
- *Pre-feed residuals have a limited role to play in predicting necrotising enterocolitis.*

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PEDIATRIC INFLAMMATORY BOWEL DISEASE: WHAT A PEDIATRICIAN SHOULD KNOW***Malathi Sathiyasekaran**
****Sivabalan So**

Abstract: Onset of inflammatory bowel disease (IBD) below 17 years is labelled as pediatric IBD which comprises 25% of total IBD. Pattern of presentation depends on the age of onset. The etiology is usually an interplay of genetic susceptibility, immune dysregulation and altered environment. Diagnosis is by history, clinical examination, ileocolonoscopy with histology and contrast enhanced small bowel imaging by computed tomography (CT) or magnetic resonance (MR) enteroclysis. Prognosis depends on the severity of the disease and presence of complications.

Keywords: Pediatric inflammatory bowel disease, Crohn's disease, Ulcerative colitis, Management.

Points to Remember

- *Peak incidence of Pediatric inflammatory bowel disease is between 12 to 18 years though it is seen in all pediatric age groups*
- *Abdominal pain, bleeding per rectum, chronic diarrhea, fever and weight loss are the common manifestations.*
- *Extra-intestinal manifestations include aphthous ulcers, erythema nodosum, anterior uveitis etc.*
- *Histology plays an important role in diagnosis and management.*
- *Multi-disciplinary management with medical, nutritional and surgical support improves quality of life.*

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IAP-IJPP CME 2015

ANTI-EPILEPTIC DRUGS - DOS AND DON'TS***Thilothammal N**

Abstract: *Epilepsy is one of the common neurological problems in childhood. Anti-epileptic therapy is the main stay of treatment in these children. Older anti-epileptic drugs (AEDs) have interaction among themselves and with other medications. Combining these drugs does not improve seizure control but may increase the chance of side effects. Newer AEDs have broader and novel mechanism of action. Many patients with epilepsy require treatment for associated conditions along with AEDs. This article deals with strategies in treatment, choice of AEDs, common side effects, polytherapy, etc.*

Keywords: *Anti-epileptic drugs, Polytherapy, Adverse events, Children*

Points to Remember

- *Clear understanding of pharmacokinetics of AEDs is necessary for the effective management of seizures.*
- *Newer AEDs have less potential for pharmacokinetic interactions than older AEDs.*
- *Polytherapy remains the reality for a large proportion of patients with epilepsy.*

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IAP-IJPP CME 2015

ACUTE KIDNEY INJURY***Indira Jayakumar**

Abstract: *Acute kidney injury (AKI) has replaced the term acute renal failure to allow earlier detection. The recognition of pediatric AKI is rising owing to use of advanced technology for critically ill children and those with chronic conditions. The etiology of AKI has changed from infectious diseases alone to multifactorial causes e.g., ischemia, toxicity, nephropathy, sepsis etc. Serum creatinine level in children is a very poor indicator of glomerular filtration rate as it has a lag rise and is dependent on muscle mass. Even modest elevation in serum creatinine and a positive fluid balance has been shown to be a risk factor for mortality. Pediatric pRIFLE criteria and biomarkers can help in early detection of AKI and along with aggressive treatment improve outcome in AKI.*

Keywords: *Acute kidney injury, pRIFLE criteria, Fluid overload, Early detection, Glomerular filtration rate, Renal replacement therapy.*

Points to Remember

- *Etiology of acute kidney injury is multifactorial.*
- *pRIFLE criteria and biomarkers help in early detection of AKI.*
- *Early detection of AKI and positive fluid overload with an aggressive approach to management can significantly reduce mortality.*

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IAP-IJPP CME 2015

HUMIDIFIED HIGH-FLOW NASAL CANNULA OXYGEN THERAPY***Bala Ramachandran******Nitin Manwani*******Ravikumar K**

Abstract: Humidified High-flow Nasal Cannula (HHFNC) oxygen therapy is a method for providing non-invasive respiratory support to children with respiratory distress. It has been studied extensively in premature neonates with Respiratory Distress Syndrome (RDS). HHFNC has also been found useful in older infants and children with bronchiolitis and pneumonia. HHFNC is relatively less invasive and easier to use than Continuous Positive Airway Pressure (CPAP) and has become popular among physicians and nursing staff. This review discusses the current understanding of the mechanisms of action of HHFNC and the existing evidence relating to its clinical applications in children.

Keywords: Non-invasive ventilation, Continuous Positive Airway Pressure, Humidified high-flow Nasal Cannula, Bronchiolitis

Points to Remember

- *HHFNC is a method of non-invasive respiratory support in infants and preterm neonates that is generally well tolerated and popular with clinicians and nursing staff due to ease of use.*
- *Exact physiological mechanisms of action of HHFNC are yet to be fully elucidated.*
- *Data from clinical studies suggest that modern HHFNC devices are at least equivalent to nasal CPAP, if not superior.*
- *Practical expertise in the application of HHFNC, including mouth positioning, selection of nasal cannula size and initial flow rate, is the key to clinical success.*
- *After commencing HHFNC support it is vital to carefully monitor and reassess the patient frequently, especially if undertaken outside an intensive care setting.*

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IAP-IJPP CME 2015

DEVELOPMENTAL DISORDERS - EARLY RECOGNITION***Somasundaram A**

Abstract: *Early identification of developmental disorders is critical to the well-being of children and their families. It is an integral function of the primary care medical home and an appropriate responsibility of all pediatric health care professionals. It is recommended that developmental surveillance be incorporated at every well-child preventive care visit. Any concern raised during surveillance should be promptly addressed with standardized developmental screening tests. In addition, screening tests should be administered regularly at 9, 18 and 30 month visits. The early identification of developmental problems should lead to further developmental and medical evaluation, diagnosis and treatment, including early developmental intervention. Children diagnosed with developmental disorders should be identified as children with special health care needs and chronic-condition management should be initiated. Identification of a developmental disorder and its underlying etiology may also drive a range of treatment planning, from medical treatment of the child to family planning for his or her parents.*

Keywords: *Early recognition, Development delay, Development screening*

Points to Remember

- *Developmental disorders and behavioral problems are considered the 'new morbidity' of childhood.*
- *High quality early intervention services can change a child's developmental trajectory and improve outcomes for children, families, and communities.*
- *Screening tests should be both reliable and valid, with good sensitivity and specificity.*
- *Neuromotor tone assessment, vision and hearing screening can prevent later handicaps in life.*

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GENERAL ARTICLE

ZINC IN HEALTH AND DISEASES***Elizabeth KE**

Abstract: Zinc is an essential and protective trace element and is recommended to promote growth in low birth weight babies and in malnutrition. Dietary intake of zinc is often low and conditioned zinc deficiency occurs in chronic gastrointestinal, liver and kidney diseases. WHO has recommended zinc along with ORS in the treatment of diarrheal diseases. Zinc is the drug of choice for acrodermatitis enteropathica, an adjunct in the treatment of Wilson's disease and is mandatory in total parenteral nutrition fluids. By virtue of its antioxidant properties, it is recommended in various chronic diseases like atherosclerosis, diabetes mellitus type 2, age related macular degeneration and Alzheimer's disease.

Keywords: Zinc, Acrodermatitis enteropathica, Antioxidant, Hypogeusia

Points to Remember

- *Zinc is an essential trace element with a protective role in the human body and is recommended to promote growth in LBW babies and in malnutrition.*
- *Dietary intake of zinc is often low and conditioned zinc deficiency occurs in chronic GIT, liver and kidney diseases.*
- *WHO has recommended zinc along with ORS in the treatment of diarrheal diseases.*
- *Zinc is the drug of choice for acrodermatitis enteropathica, an adjunct in the treatment of Wilson's disease and is mandatory in TPN fluids.*
- *Zinc therapy may have a role in chronic diseases like atherosclerosis, diabetes mellitus type 2, age related macular degeneration and Alzheimer's disease.*

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GENERAL ARTICLE

RABIES VACCINES

***Sudarshan MK**

Abstract: Rabies is a viral zoonotic disease which kills about 55,000 persons worldwide every year of which 20,000 are from India. The animals which transmit the disease in India are dogs (97%), cats (2%), mongoose, jackals and others (1%). The David Semple (Nerve tissue or sheep brain) vaccine was discontinued in 2005 and replaced by modern rabies vaccines by intramuscular route. To promote cost-effective post-exposure rabies vaccination, the Government of India introduced administration of rabies vaccines by intradermal route in 2006. Currently the rabies vaccines produced and used in the country include purified chick embryo cell vaccine, purified vero cell vaccine, purified duck embryo vaccine and human diploid cell vaccine. The rabies immunoglobulins which are vital in category III (severe) exposures are now more widely used. The vaccine regimens approved for use in India are the five doses Essen regimen by intramuscular route and the four doses updated Thai Red Cross regimen by the intradermal route. Lastly, guidelines for re-exposure vaccination and pre-exposure vaccination are also described.

Keywords: Rabies, Rabies vaccines, Rabies immunoglobulins, Post-exposure vaccination, Re-exposure vaccination, Pre-exposure vaccination.

Points to Remember

- *Rabies PEP is life saving and consists of wound management, administration of rabies vaccine in category II and III exposures and RIG in category III exposures.*
- *Two vaccination regimens are approved in India. The five dose Essen regimen (0.5 mL or 1 mL IM) given on days 0, 3, 7, 14 and 28; Updated Thai Red Cross regimen (0.1 mL ID, in two sites) given on days 0, 3, 7 and 28.*
- *The vaccine by IM route shall never be given in the gluteal area.*
- *Administration of RIG in category III bites / exposures is vital, as vaccine alone will not suffice to protect against rabies. RIGs shall be infiltrated locally into all wounds as anatomically feasible.*
- *Re-exposure vaccination consists of two doses of vaccine given on days 0 and 3 either by IM or ID route. There is no need for RIGs.*
- *Pre-exposure or preventive vaccination is recommended for those who are at continual or high risk of contracting rabies or those exposed on frequent /regular basis to rabies. It consists of administration of one dose of vaccine on days 0, 7 and 21 or 28 given either by IM or ID route.*

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DRUG PROFILE

PROTON PUMP INHIBITORS IN CHILDREN

Jeelson C Unni

Abstract: Proton pump inhibitors are frequently prescribed by pediatricians and pediatric gastroenterologists for a variety of conditions like gastroesophageal reflux disease, *Helicobacter pylori* infections, duodenal ulcer and gastric ulcer. Though there is evidence that these drugs inhibit gastric acid production in neonates and infants, their effectiveness in treating gastroesophageal reflux disease in this age group is lacking. Esomeprazole is the only agent that has been approved recently for the treatment of erosive esophagitis in infants.

Keywords: Proton pump inhibitors, Gastroesophageal reflux disease, *Helicobacter pylori*, Omeprazole, Esomeprazole, Lansoprazole.

Points to Remember

- *PPIs have been proven safe and effective in children and adolescents for short-term treatment.*
- *They are most commonly used in practice for GERD, peptic ulcer disease and eradication of *H. pylori*.*
- *PPIs are useful in GERD in older children; recent evidence suggests effectiveness of oral esomeprazole in infants with GERD.*
- *Overuse of PPIs in infants and children is to be avoided.*

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DERMATOLOGY

COMMON HAIR DISEASES RESULTING IN HAIR LOSS IN CHILDREN

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Abstract: *Hair has equal importance as the skin as it gives cosmetic elegance. Diseases of the hair may be specific to the hair or it may be associated with disease of skin and other organs. Hair loss may be physiological or pathological. Hair loss could be classified according to the age and pattern of hair loss. Few conditions occur at birth and a few after birth. Hair conditions may be associated with circumscribed loss or diffuse hair loss. Hair diseases may be reversible or irreversible. Few of the diseases resolve as the child grows and may not need treatment except for reassurance. A few conditions may need treatment for regrowth of hair or to stop further loss of hair. Most of the conditions are diagnosed clinically and rarely they need special investigations like Potassium hydroxide preparation and a few need microscopic examination and if necessary trichogram could be done. Major diseases like alopecia areata and trichotillomania are reversible. Tinea capitis is caused by superficial fungal infection and mostly diagnosed by history and clinical examination and if necessary by potassium hydroxide preparation.*

Keywords: *Alopecia, Reversible, Hair diseases.*

Points to remember

- *Hair loss could be physiological in most of the cases at the time of birth and majority of the conditions are reversible*
- *Rule out pathological causes of hair loss and treat them accordingly.*
- *In conditions associated with irreversible hair loss, counselling has to be given to the parents and children.*

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SURGERY**DYSFUNCTIONAL VOIDING IN CHILDREN*****Reju J Thomas**

Abstract: *Dysfunctional voiding is an abnormality of the control of micturition which commonly presents with lower urinary tract symptoms in school going children. It can be severe enough to cause renal damage and can be diagnosed on the basis of history and observation without invasive investigations. The differential diagnosis includes vaginal reflux, diabetes insipidus and neurogenic bladder. The conditions of pollakiuria and giggle incontinence are discussed.*

Keywords: *Dysfunctional voiding, Incontinence, Bowel bladder dysfunction, Children.*

Points to Remember

- *Dysfunctional voiding can manifest with lower urinary tract symptoms such as urgency, frequency and recurrent urinary infections.*
- *Careful history and physical examination with urine analysis and ultrasound examination are sufficient to arrive at a diagnosis.*
- *Urotherapy and management of constipation when present, are the initial line of management.*
- *Early referral to a pediatric surgeon or pediatric urologist is indicated if there are urological abnormalities, hydronephrosis or suspicion of a neurogenic bladder.*

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CASE REPORT

EXTENSIVE HIRSCHSPRUNG'S DISEASE AND WAARDENBURG SYNDROME: CASE SERIES

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Abstract: *Waardenburg syndrome is a rare genetic disorder which primarily has varying degree of deafness associated with pigmentary anomaly and defects of neural crest cell derived structures. There are four subtypes (I–IV) with variable penetrance and gene expression of different clinical features described in literature. Herein we report three neonates with Waardenburg syndrome type 4 with extensive involvement of the gut (Hirschsprung disease).*

Keywords: *Waardenburg-Shah syndrome, White forelock, Hirschsprung disease.*

Points to Remember

- *Waardenburg - Shah syndrome is associated with Hirschsprung's disease. There can be extensive involvement.*
- *After this syndrome is identified, other family members should be screened for deafness and other features as this has variable penetrance.*
- *Genetic counseling should be done for families as this can recur in future pregnancies.*

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