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RECENT ADVANCES IN SEPTIC SHOCK

*Deepika Gandhi

Abstract: Septic shock is the most complex and controversial type of shock. Attempts to reduce the mortality associated with septic shock have prompted collaborative research and consensus worldwide for timely diagnosis, monitoring and appropriate management of the causative infection and associated organ dysfunction. In addition, better understanding of the underlying pathophysiological mechanisms and significant advances in the treatment of severe sepsis has helped to individualize the management of a patient with septic shock into phases of resuscitation, stabilization and de-resuscitation in order to avoid the complications of over-treatment.

Keywords: Septic shock, Bundle care, Resuscitation, Outcomes.

Points to Remember

• Successful management of septic shock is challenging.
• Early recognition of septic shock using a trigger-tool and a systematic approach to management increases the chance of a favorable outcome.
• One hour bundle approach, which includes measuring lactate, obtaining blood culture before giving appropriate antibiotics, starting rapid administration of crystalloid fluids for hypotension or lactate \( \geq 2 \text{ mmol/L} \) and an early use of vasopressors for fluid-refractory shock remain the cornerstone of treatment.
• After the initial fluid bolus, subsequent fluid resuscitation must be guided by measures of fluid responsiveness.
• Positive fluid balance at 72 hours increases morbidity and mortality. All attempts must be made to de-escalate supports and achieve negative fluid balance.

References


CARDIAC FAILURE - RECENT ADVANCES

*Saileela R

Abstract: Heart failure is a major cause of morbidity and mortality in children. The common causes of heart failure in children are congenital heart defects and cardiomyopathy. Heart failure management aims at symptomatic relief, reduction of readmissions, prevention of disease progression, improving longevity and quality of life. The initial step in the management of heart failure involves identification and management of the cause and precipitating factors. The medical management of heart failure includes a combination among the following drugs - ACE inhibitor, beta blocker, aldosterone antagonist, diuretic and digoxin. Advanced heart failure treatment includes cardiac resynchronization therapy, mechanical circulatory support and heart transplantation. This review gives an overview of important aspects of etiology, evaluation, management and recent advances in heart failure in children.

Keywords: Cardiac failure, Pharmacotherapy, Device therapy, Children.

Points to Remember

- Several causes of heart failure in children are curable and reversible. Early diagnosis and treatment of reversible causes like structural heart defects and tachyarrhythmia result in good long-term prognosis.
- Treatment of precipitating factors like anemia, electrolyte imbalance and intercurrent infections reduce the morbidity in heart failure.
- Diuretics help in symptomatic improvement of heart failure. Drugs like ACE inhibitors and beta blockers counteract the neurohumoral mechanisms and alter the pathologic remodelling of heart in chronic heart failure.
- Mechanical circulatory support (ECMO, ventricular assist devices) are being increasingly adopted in appropriate patients.

References


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KAWASAKI DISEASE – WHAT IS NEW?
*Sathish Kumar

Abstract: Kawasaki disease is an acute febrile illness of childhood that is characterized pathologically by vasculitis of medium-sized, extraparenchymal arteries, with a predilection for the coronary arteries. It is the leading cause of acquired heart disease in developed countries, whereas rheumatic heart disease continues to dominate the developing world. The natural history, treatment and sequelae of untreated Kawasaki disease are now well described. This article covers latest updates in Kawasaki disease.

Keywords: Kawasaki Disease, Children, Coronary artery involvement, Update.

Points to Remember

- Children with acute Kawasaki disease should be treated promptly with intravenous immunoglobulin to prevent coronary artery abnormalities.
- Children with persistent or recrudescent fever after primary therapy with IVIG should receive additional immunomodulatory therapy. The most common practice is administration of a second dose of IVIG at 2 g/kg.
- Other secondary therapies to be considered include corticosteroids and infliximab.
- Echocardiography is an excellent modality for assessing proximal coronary artery changes in infants and young children with early KD.
- In patients with KD and coronary aneurysms, cardiac evaluation is tailored to the degree of coronary artery involvement and involves serial assessment of coronary function and structure.

References


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N-ACETYL CYSTEINE IN LIVER DISEASE

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Abstract: N-acetyl cysteine, a glutathione precursor has been accepted universally for nearly five decades for paracetamol or acetaminophen induced hepatitis and acute liver failure. However early administration with appropriate dosing needs to be stressed since it may not be that effective if there is a delay in administration. Paracetamol toxicity may occur either due to acute poisoning or multiple supra-therapeutic dosing and the management differs. Liver transplantation can be deferred if the pediatrician recognizes the etiology and initiates therapy at the right time. Interest has now turned to use of N-acetyl cysteine in non-paracetamol drug induced liver injury, acute liver failure and in other liver diseases associated with oxidative stress. This article highlights the use of N-acetyl cysteine in various liver diseases and opens vistas where further studies are required.

Keywords: N-acetyl cysteine, Paracetamol, Supratherapeutic dose.

Points to Remember

- N-acetyl cysteine is the drug of choice in paracetamol overdose in children.
- In non paracetamol pediatric acute liver failure response to NAC is not uniform and more studies are required.
- NAC has been reported to be beneficial in veno occlusive disease, NASH, dengue induced ALF and wherever glutathione depletion and oxidative stress is evident.
- NAC should not be used as a panacea for all liver diseases.
- Paracetamol toxicity is preventable and utmost care should be taken to give the correct dose.

References


VESICOURETERAL REFLUX IN CHILDREN - A PRACTICAL GUIDE

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** Rehna K Rahman

Abstract: Vesicoureteral reflux is commonly present in children with urinary tract infections or antenatal hydronephrosis. The gold standard for vesicoureteral reflux diagnosis remains micturating cystourethrogram. Vesicoureteral reflux may be associated with renal scarring, hypodysplasia and bowel bladder dysfunction. The goal of vesicoureteral reflux management is to prevent recurrent urinary tract infections and long term consequences in the form of hypertension and chronic kidney disease. Continuous antibiotic prophylaxis remains the recommended management strategy for all vesicoureteral reflux children while awaiting spontaneous resolution. Surgery is indicated only for a few selected children with vesicoureteral reflux. Long term follow up of vesicoureteral reflux patients by pediatric nephro-urologist as well as the pediatrician is crucial.

Keywords: Vesicoureteral reflux, Renal scarring, Continuous antibiotic prophylaxis, Bowel bladder dysfunction.

Points to Remember

- The most common congenital anomaly of the urinary tract is VUR with serious consequences such as CKD.
- Any child with UTI, antenatal hydronephrosis or with siblings/parents with a history of VUR must be screened.
- MCU is the gold standard for the diagnosis of VUR.
- Renal scarring, hypodysplasia and bowel bladder dysfunction may be associated with VUR.
- Management includes proper early diagnosis, continuous antibiotic prophylaxis, surgical management in a few and long term follow up.
- Role of the pediatrician is critical for early diagnosis and improving outcomes.

References


NEUROREHABILITATION IN NEURO DEVELOPMENTAL DISABILITIES

*Vijayalakshmy J

Abstract: Neurodevelopmental disorders occur when the central nervous system development is disturbed. Neurorehabilitation aims at intervention to develop skills in different areas like sensory, motor, cognition, language, social and emotional. Sleep disorders also need to be treated. The neurorehabilitation activities are planned taking advantage of the plasticity of the brain and to minimize the effect of brain damage. Multidisciplinary team is required initially to assess and then to rehabilitate. Transdisciplinary approach could be used after sharpening the skills of the team members and discussion with the parents about their needs. Various adaptations are needed to develop a skill.

Keywords: Neurorehabilitation, Neurodevelopmental disorders

Points to Remember

- Neurodevelopmental disorders occur due to insult during antenatal, natal or postnatal period.
- Early diagnosis and intervention will minimize the adverse effects.
- Following assessment by a multidisciplinary team neurorehabilitation is planned with sensory and motor stimulation as the first set of activities.
- Activities of daily living and group activities for socialization should be encouraged.
- Make the child smile at least five times a day.

References


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FOLLOW-UP OF PRETERM INFANTS – GROWTH CHARTS, FEEDING ADVICE, IMMUNIZATION

*Anitha M

Abstract: The post discharge follow-up program for preterm Neonatal Intensive Care Unit graduates should possess growth monitoring with appropriate tools, plans for post discharge nutrition, schedules for immunization and regular neurodevelopmental assessments. Fenton charts 2013 are descriptive reference charts for plotting growth of preterm infants from 22 weeks onwards and smoothly transiting after 50 weeks postmenstrual age to WHO Multicentric Growth Reference Study 2006 growth standards charts. Standard charts obtained from INTERGROWTH - 21st Preterm Postnatal Follow-up Study can be used to assess preterm babies > 33 weeks up to 64 weeks postmenstrual age after which they overlap with the WHO Multicentre Growth Reference Study 2006 charts making them the recommended charts for growth monitoring in preterm neonates post discharge. Feeding plans after discharge lack guidelines and needs to be individualised based on the infant’s postnatal growth pattern. Nutrient enrichment seems to have a role only in babies who have difficulties to grow postnatally. Preterm infants can be immunized according to their chronological age with all routine and special vaccines in the usual dose except hepatitis B vaccine.

Keywords: Preterm infants, Follow-up, Growth charts, Nutrition, Immunization

Points to Remember

- Intergrowth-21st charts can be used to assess preterm babies up to 64 weeks postmenstrual age after which they can be followed up with WHO MGRS 2006 charts.
- Individualized feeding plan based on the infant’s postnatal growth pattern is advisable.
- Nutrient enrichment in the form of fortifiers in human milk fed babies or preterm formula in formula fed infants may benefit infants with or at risk of postnatal growth faltering.
- Supplementation with calcium, phosphorus and multivitamins until 40 weeks term and vitamin D and iron until 1 year corrected age are recommended in exclusively human milk fed babies.
- Complementary feeding is started at 4 months corrected age in growth appropriate infants and not later than 6 months corrected age in growth faltering infants.
- All well preterm infants should receive routine vaccines as per National Immunisation schedule based on their chronological age.
- Hepatitis B vaccination alone needs to be modified in infants less than 2 kg based on maternal hepatitis B status.

References


ANTI-VIRAL DRUGS IN CHILDREN AND ADOLESCENTS

*Jeeson C Unni

Abstract: This article intends to make pediatricians familiar with antiviral drugs and provides specific recommendations for treatment of viral diseases. The antiviral drugs in clinical use are discussed in terms of their doses, routes of administration, mechanisms of action, established and potential efficacies and toxicities. Biologic response modifiers such as interferons, are mentioned.

Keywords: Children, Viral infections, Treatment

Points to Remember

- Among anti-herpes virus agents thorough knowledge of the prototype / 1st line drug, acyclovir is essential, as other Anti HSV drugs are rarely required.
- Oseltamivir is the primary drug for treatment and prophylaxis of influenza.
- Antivirals are used selectively for hepatic viral infections.
- Pediatricians need to know about the indications, type of drugs, common side effects and follow-up in the treatment of HIV/AIDS.

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HYPERPIGMENTED SKIN LESION

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Abstract: Hyperpigmentation is the darkening or increase in the natural colour of the skin. Hyperpigmented skin lesions are a common occurrence in children. They maybe a separate entity or a manifestation of underlying systemic disease. A thorough knowledge and careful examination is needed for diagnosis and proper management of the conditions.

Keywords: Hyperpigmentation, Melanocytes, Congenital, Acquired, Epidermal and dermal melanosis

Points to Remember

- Pigmentation disorders are common dermatoses seen in children.
- Nevoid conditions are more common than other causes.
- Skin pigmentation can be the sole manifestation of underlying systemic and genetic diseases sometimes.
- Treatment is mainly for cosmetic concern in many cases and lasers are useful.

References

MEDIA USAGE IN ADOLESCENTS

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Abstract: Current generation is growing in media driven world. However, as adolescent brain is still developing and have poor self-control, they can fall prey to the ill effects of media. It is important for pediatricians and parents to advice adolescents regarding safe use of media. This article gives an insight into media usage among adolescents and a quick guide to pediatricians in handling adolescents with media related problems in their office practice.

Keywords: Media use, Cyberbullying, Sexting, Media history, Digital boundary.

Points to Remember

- Adolescent media usage has become an integral part of present day lifestyle.
- Awareness regarding benefits versus ill effects (cyberbullying, sexting) is the need of the hour.
- Education about staying safe in the digital world.
- Pediatricians should give anticipatory guidance.
- Parents need to talk regarding the healthy media use to their adolescents.

References


MORE THAN WHAT MEETS THE EYE – INVASIVE FUNGAL INFECTIONS IN TWO IMMUNOCOMPETENT CHILDREN PRESENTING AS LYMPHOMA

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*Shivani P
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**Annapoornesi
**Parmar HV

Abstract: Invasive fungal infections are rare in children, seen almost exclusively in immunocompromised patients. We report two immunocompetent children who presented with clinical features suggestive of lymphoma and were diagnosed to have conidiobolomycosis and pheohyphomycosis on tissue biopsy. They were treated with liposomal amphotericin B and voriconazole respectively and are now in remission with a median follow up of 6 months. These two cases are reported in view of the rarity and to highlight the importance of tissue biopsy and multi-disciplinary approach.

Keywords: Immuno-competent, Invasive fungal infection, Tissue biopsy

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