BRIEFLANDS®

Journal of COMPREHENSIVE PEDIATRICS

Official Quarterly Journal of Iranian Society of Pediatrics

ISSN: Print 2251-8150 Online 2251-8177 12-17 December 2021

Abstract of 17th Congress of Pediatric Emergencies and Common Diseases

Article Online Submission at:
https://brief.land/jcp/index.html

Abstract of 17th Congress of Pediatric Emergencies and Common Diseases

12-17 December 2021

Tehran/Iran

KOWSAR

Kowsar Publishing Corp.

JOURNAL INFORMATION

Journal of Comprehensive Pediatrics (J Compr Ped) is a quarterly official journal compiled by Iranian Society of Pediatrics (ISP).

AIMS AND SCOPE

The open access journal of Comprehensive Pediatrics is an official journal of ISP, covering clinical and basic research, education, patients care, health economics, and policy to inform pediatricians. The journal welcomes all kinds of manuscripts and other scientific communications including original manuscripts, meta-analyses and reviews, health economic papers, debates, and consensus statements of clinical relevance of Pediatric fields.

CONTENT COVERAGE

Journal of Comprehensive Pediatrics is an authentic jounal and its content is devoted to selected compilation of the latest worldwide and interdisciplinary researches and reviews in the field of Pediatrics. In addition, consensus evidential reports not only highlight the new observations, original researches and results accompanied by innovative treatments and all other relevant topics, but also include highlighting disease mechanisms or important clinical observations and letters on articles published in journal.

SCIENTIFIC COLLABORATORS

Journal of Comprehensive Pediatrics is published in co-operation with Iranian Society of Pediatrics, Tehran, Iran.

Full Journal Title	Journal of Comprehensive Pediatrics
JCR Abbreviation Title	J COMPR PED
ISO Abbreviation Title	J. Compr. Ped.
Category	Pediatric
P-ISSN	2251-8150
E-ISSN	2251-8177
Language	English
Journal Country / Territory	Iran
Frequency	Quarterly
Online Submission	sites.kowsarpub.com/jcp/
Price	**Online:** Free
Indexing Sources	Scopus, Embase, Index Copernicus, Ulrichs Web, ROAD, Open J-Gate, DRJI, World Cat, Google Scholar, ISC, Ricest, Barakatkns, Magiran, SID
Editorial Board	**Postal Address:** 3rd Floor, No. 20, Bozorgmehr St., Valiasr Ave, Tehran, Iran; P. O. Box: 141693896; Tel: +98 21 66968317-8 | Fax: +98 21 66465828 **Electronic Address:** Website: sites.kowsarpub.com/jcp/ | E-mail: support@kowsarpub.com
Publisher	**Kowsarmedical** **Postal Address:** • *Central Office:* Kerkraderweg 13, 6416 CC, Heerlen, The Netherlands Cell: +31 615314198 , +31 455118301 | Fax: +31 455118301. **Electronic Address:** Website: www.kowsarpub.com | E-mail: info@kowsarpub.com

CONTENTS

12-17 December 2021

CONTENTS

INTRODUCTION

In the name of God

Dear Friends and Colleagues,

On behalf of the Shahid Beheshti University of Medical Sciences faculty Members, it Gives me Great Pleasure to Introduce you to Study our Abstract Booklet of the 17th Annual Congress of Pediatric Emergencies & Common Diseases from 12 to 17 December of 2021 that accepted abstracts were published in a supplementary number of Journal of Comprehensive Pediatrics.

Building on the experience in the past year offering virtual Congresses due to COVID-19, the Board intends that the 2021 Congress will be intended more professionally.

The 17th Congress was where to hear the latest research findings in the pediatric field and catalyze new ideas generated by the multi-disciplinary attendance for which we are renowned. Furthermore, parallel sessions organized by the Nursing Network and the Health Network provided an excellent forum to meet with your peers and hear about opportunities for networking and collaboration.

With Warm regards

Mohammad Mehdi Nasehi M.D
President of Congress
Director of the Pediatric Group of
SBMU Tehran Iran

■Opsoclonus-Myoclonus Syndrome as a Paraneoplastic Disorder

Ladan Afsharkhas[1*], Aziz Eghbali[1]

[1] Iran University of Medical Sciences, Tehran, Iran

*Corresponding author: Iran University of Medical Sciences, Tehran, Iran. Email: dr.afsharkhas@yahoo.com

Abstract

Background: Opsoclonus-myoclonus syndrome (OMS), also called Kinsbourne syndrome or dancing eye syndrome, is a rare sporadic disorder that affects the nervous system. Symptoms include opsoclonus, myoclonus, ataxia, sleep disturbance, and behavioral changes. Treatment is according to its cause and includes corticosteroids or adrenocorticotropic hormone (ACTH), chemotherapy, surgery, and radiation for tumors and antibiotics for infective cases. We present a case of OMS with an abdominal mass.

Patient Presentation: We reported a twelve-month-old female patient with abnormal eye movements and motor regression. She was born from an uneventful cesarean section, nonconsanguineous marriage, and average growth and development history. The problems started from two weeks before admission with irritability and the inability to sit, stand, and walk. Gradually she became ataxic (truncal), with chaotic eye movement and abrupt jerks in extremities. All data, including blood sugar, electrolytes, urine analysis, venous blood gases, was within normal limits. In routine hematologic measures, megaloblastic anemia and leukopenia were detected. In 24 hours urine collection specimen, catecholamines levels (VMA and HV A) were increased. An adrenal mass was revealed in the assessment. In electroencephalography (EEG), nonspecific changes were detected. Adrenal evaluation in CT scan slices showed a 5 × 3.5 cm mass in the right adrenal with invasion to the edge of its kidney and resected by surgery. Intravenous immunoglobulin, methylprednisolone, and rituximab were prescribed. Pathology results were compatible with neuroblastoma. Myoclonus and irritability decreased with oral clonazepam.

Conclusions: There are various manifestations of neuroblastoma, from a mass in the abdomen to severely progressive disease of OMS. It is suggested in every child with abnormal eye movement and motor disability and necessary to have more attention to find abdominal mass.

Keywords: Myoclonus, Neuroblastoma, Opsoclonus

■Hypoxemia in Children

Ali Azimi [1*]

[1] Kashan University of Medical Sciences, Kashan, Iran

* *Corresponding author:* Kashan University of Medical Sciences, Kashan, Iran.

Abstract

Hypoxemia is an abnormal deficiency in the concentration of oxygen in arterial blood. Hypoxia is an inadequate oxygen tension at the cellular level, so hypoxemia can cause hypoxia, but not every patient with hypoxia is necessarily hypoxemic. Hypoxemia is a common and potentially lethal complication of acute respiratory illness (ARI) in children under five years, particularly those with severe disease and those living at high altitudes. The prevalence of hypoxemia among childhood pneumonia cases varies widely between geographic regions and at different altitudes and with pneumonia severity. 13.3% of WHO-defined pneumonia cases globally are hypoxemic. In lower-lying African countries, prevalence ranges from 3 to 10%, whereas in Asia, at higher altitudes, prevalence ranges from 9 to 39%. Hypoxemia at baseline also is a common cause of treatment failure in hospitalized children with pneumonia. Early detection of hypoxemia and oxygen therapy improves the outcome of children with ARI. Most health providers rely on symptoms and signs to identify hypoxemia and start oxygen therapy. In the setting of limited resource hospitals, the presence of a pulse oximeter might help a lot in the early detection of hypoxemia. There are four types of hypoxia: hypoxemic, anemic, stagnant, and histotoxic. Hypoxemic hypoxia is the most common type in which the oxygen pressure in the blood going to the tissues is too low to saturate the hemoglobin; the next type is called anemic, in which the amount of functional hemoglobin is too small, and hence the capacity of the blood to carry oxygen is too low. The third type called stagnant or ischemic, in which blood flow to the tissues is reduced or unevenly distributed. Finally, in the histotoxic type, the tissue cells are poisoned, so they cannot correctly use oxygen. Hypoxia is an inadequate oxygen tension at the cellular level which has four types: hypoxemic; the most common, anemic, stagnant, and histotoxic.

Keywords: hypoxia, hypoxemia, ARI

■Pathophysiology of Intracranial Pressure Rising

Ali Manafi Anar [1], Behzad Haghighi Aski [1]

[1] Ali Asghar Children's Hospital, Iran University of Medical Sciences, Tehran, Iran.

Abstract

Pathophysiology of intracranial pressure rising. There are three things inside the cranium that make up its volume, brain tissue, blood, and CSF. Because the volume is stable, three things maintain an equilibrium such that when the volume of one component increases, the volume of another decrease. However, at a critical point, the CSF and blood buffers cannot compensate for changes in cranial compartment volume. That is, when the volume increases too much, usually at volumes greater than 100 to 120 mL, the intracranial pressure begins to rise. At this

point, the intracranial pressure begins to skyrocket with changes in intracranial volume. Furthermore, this is important because the amount of intracranial pressure is directly related to the cerebral perfusion pressure, which is the driving pressure the brain sees in terms of delivering oxygen and other vital nutrients. Moreover, cerebral perfusion pressure is defined as the equation, mean arterial pressure minus the intracranial pressure. Cerebral blood flow delivers nutrients to the brain and separates from cerebral blood volume. However, if cerebral blood flow is detected, increasing cerebral blood volume increases the intracranial pressure. Another compensatory mechanism of the brain is autoregulation in the brain, in that, along with a wide range of cerebral perfusion pressures, the cerebral blood flow stays relatively constant. A couple of factors, in particular, affect cerebral blood flow. One of them is the oxygen content in the blood. As the oxygen tension in the blood begins to drop closer to the 40 range, cerebral blood flow increases. Another factor that affects cerebral blood flow is the concentration of carbon dioxide within the blood, measured as partial pressure. As carbon dioxide level in the blood begins to rise, cerebral blood flow also increases. Again, vasodilation, increased blood volume, increased cerebral blood flow probably will exacerbate any ongoing intracranial swelling.

Keywords: Brain, Pressure, Intracranial

■Updates in Pediatric Gastroenterology & Hepatology

Hossien Alimadadi [1*]

[1] Tehran University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Tehran University of Medical Sciences, Tehran, Iran.

Abstract

The most surprising event in the last year revolved around the approach to button battery ingestion in children: "Mitigation strategies with honey and sucralfate can be considered in specific cases while waiting for endoscopy." NASPGHAN published another excellent position paper on pediatric acute liver failure last year. Management of infantile Wilson's disease was a doubtful issue for many years. In May 2020, an attractive article was published in this era. Probiotics are routinely used as a safe treatment for acute gastroenteritis in pediatrics, but that seems to be doubted in a new article. The diagnostic approach to celiac disease became easier last year. Also, in 2021, a comprehensive article on Functional fecal incontinence in children was published. Much research has been done on the gut microbiome and the role of genes in pediatric disorders in recent years. The results of these researches will lead to an essential revolution in the approach to children's diseases.

■Management of Caustic Ingestion in Pediatrics

Amirhossein Hosseini [1*]

[1] Pediatric Gastroenterology, Hepatology and Nutrition Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Gastroenterology, Hepatology, and Nutrition Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: amir1981hosseini@gmail.com

Abstract

The initial steps in managing caustic ingestion are supportive care and close observation, preventing vomiting, choking, and aspiration. The induction of emesis is contraindicated because vomiting may lead to additional esophageal injury if gastric contents contact the esophageal mucosa. Similarly, attempts to dilute or neutralize the acidic agent, administration of activated charcoal, or gastric lavage are not recommended. Upper endoscopy should be performed for most patients with a definite history of caustic ingestion, even if asymptomatic; endoscopy should always be performed in patients with symptoms or oral lesions. Ideally, the endoscopy should be completed within 24 hours of the ingestion to evaluate and stage the esophageal injury. Endoscopy is generally unnecessary in patients with a questionable history of ingestion, no evidence of oral lesions, no dysphagia, vomiting, or other symptoms, and who remain asymptomatic and continue to swallow normally during several hours of observation. Patients who ingested household bleaches have significant tissue injury and rarely require endoscopy. All Patients with significant esophageal burns (e.g., grade 2A and higher) noted on endoscopy or Those with persistent dysphagia should be evaluated with barium contrast studies two to three weeks post-ingestion to assess stricture formation. It is common practice to give antibiotics (a third-generation cephalosporin) prophylactically to selected patients with caustic esophageal injury suspicion of perforation on chest radiograph or endoscopy, and for those with grade 3 burns. Glucocorticoids seem ineffective for patients with caustic esophageal injuries, but there is an ongoing study in this area.

Keywords: Pediatrics, Management, Caustic Ingestion

■Successful Changing of the Pediatric Hematology and Oncology Curriculum in Iran

Babak Abdolkarimi[1], Hassan Abolghasemi[2], Mohammed Faranosh[3], Peyman Eshghi[4], Bibi Shahin Shamsian[4], Nader Momtazmanesh [5], Bijan Kiekhaie[4], Mehdi Shahriari[5], Arash Alghasi[6], Fatemeh Malek[5*]

[1] Lorestan University of Medical Sciences, Lorestan, Iran

[2] Baghiatallah University of Medical Sciences, Tehran, Iran

[3] Iran University of Medical Sciences, Tehran, Iran

[4] Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[5] Jondi Shapour University of Medical Sciences, Ahvaz,

[6] Shiraz University of Medical Sciences, Siraz, Iran

** Corresponding author:* Fatemeh Malek Email: fmalek@sbmu.ac.ir

Abstract

Introduction: Undoubtedly, the evaluation of the fellowship programs is a multi aspected task. Pediatric hematology and oncology subspecialty encounter rapid evolution; hence, periodic evaluation of training fellowship program seems inevitable. Among the decision-making models, the CIPP model developed and presented by Stephen Beim seemed suitable for evaluating our current program.

Methods: Our study has consisted of two quantitative and qualitative phases. The chosen method is a cross-sectional study. The investigation started in the current year (1400), sponsored by the Iranian Pediatric Blood and Cancer Association. Its statistical population is the premium members of the association. The questionnaire aims to appraise different aspects of the current fellowship program. Areas of evaluation are Professionalism, educational infrastructure, clinical competency, and research ability. The detailed items to be surveyed in the questionnaire were: (1) understanding the principles of modern medicine such as evidence-based medicine and clinical reasoning; (2) proficiency of medical ethics - study skills; (3) understanding legal procedures - research capability; (4) accepted a professional relationship with mentors - the quality of board exam - breaking bad news capability.

Results: The research is a descriptive survey. The statistical population includes the Pediatric Blood and Cancer Association faculty members, randomly selected based on the Morgan table as the research sample. The research findings indicate that the current situation of this subspecialty is confounded and needs fundamentally changes. The outlines of the training program suggest considerably updating due to the educational requirements of Iranian fellows. Paying attention to their interests and concerns, guiding them to their aims and expectations through recognizing their unique talents individually.

Conclusion: Educational need assessment of the current curriculum revealed that rewriting a new curriculum is unavoidable.

Keywords: Curriculum, Pediatric

■Allergy and COVID Vaccines

Delara Babaie [1, 2*]

[1] Mofid Children's Hospital, Shahid Beheshti University of Medical Science, Tehran, Iran

[2] Research Institute of Children Health, Shahid Beheshti University of Medical Science, Tehran, Iran

** Corresponding author:* Mofid Children's Hospital, Shahid Beheshti University of Medical Science, Tehran, Iran.

Abstract

We have been experiencing more allergic reactions to vaccines during the recent pandemic. Severe allergic reactions to vaccines are rare and difficult to predict. It might be defined as an idiosyncratic reaction caused by an immunologic mechanism. Regarding the World Allergy Organization (WAO) recommendation, immunologic reactions to drugs are categorized based upon the timing of the appearance of symptoms. This system defines two general types of reactions: immediate and delayed. Recently COVID vaccines are broadly applied worldwide. The CDC has provided the following differentiation: (1) contraindication: persons with a known (diagnosed) allergy to PEG, polysorbate, or another component of a COVID-19 vaccine or who have experienced a severe allergic reaction (e.g., anaphylaxis) after a previous COVID-19 vaccine dose have a contraindication to vaccination; (2) precaution: persons with an immediate allergic reaction to other (non-COVID-19) vaccines or injectable therapies OR a non-severe immediate allergic reaction (onset < 4 hours) after a previous dose of COVID-19 vaccine fall into this category. May proceed with COVID-19 vaccine: (1) persons with a history of food, pet, insect, venom, environmental, oral medication (including the oral equivalent of an injectable medication) or latex allergies; or (2) a family history of allergies. Other reactions like vaccine-induced immune thrombotic thrombocytopenia (VITT) or thrombosis-thrombocytopenia syndrome (TTS) have been reported with adenoviral vector covid-19 vaccines. Myocarditis/pericarditis and Guillain-Barre Syndrome are also reported with COVID vaccines. Results of safety monitoring from VAERS and V-safe after one month of vaccinations show that over 90% of reactions were non-serious. Anaphylaxis rates (4.5 per million doses) remain in the range of other vaccines. The female gender may be a risk factor for adverse reactions and anaphylaxis. To sum up, COVID vaccines are very safe, and severe allergic reactions are exceedingly rare.

Keywords: Allergy, COVID-19, Vaccine

■Intubatin in Neonates

Ali Naseh [1*]

[1] Shahid Beheshti University of Medical Science, Tehran, Iran

** Corresponding author:* Shahid Beheshti University of Medical Science, Tehran, Iran.

Abstract

Insertion of an endotracheal tube (intubation) is strongly recommended if the baby's heart rate remains less than 100 bpm and is not increasing after positive-pressure ventilation (PPV) with a face mask or laryngeal mask. Insertion of an endotracheal tube is strongly recommended before starting chest compressions. An en-

dotracheal tube should be inserted for direct tracheal suction if the trachea is obstructed by thick secretions, for surfactant administration, and stabilization of a newborn with a suspected diaphragmatic hernia. If PPV is prolonged, an endotracheal tube may be considered to improve the efficacy and ease of assisted ventilation. A person with intubation skills should be in the hospital and available to be called if needed. If the need for intubation is anticipated, this person should be present in the delivery room at the time of birth. It is not sufficient to have someone on call at home or in a remote hospital area. The appropriate laryngoscope blade for a term newborn in size No. l. The correct blade for a preterm newborn in size No. O (size No. 00 optional for an extremely preterm newborn). The intubation procedure ideally should be completed within 30 seconds. Effective teamwork is required to perform this procedure quickly. Demonstrating exhaled carbon dioxide (CO2) and observing a rapidly increasing heart rate are the primary methods of confirming endotracheal tube insertion within the trachea. Endotracheal tube insertion depth can be estimated using the nasal-tragus length (NTL) or the baby's gestational age; however, the depth estimate should be confirmed by auscultating equal breath sounds. If the tube remains in place, obtain a chest X-ray for final confirmation. If a baby's condition worsens after endotracheal intubation, then tube may have become displaced or obstructed, or there may be a pneumothorax or PPV equipment failure (DOPE mnemonic). Avoid repeated unsuccessful attempts at endotracheal intubation. For babies who weigh more than approximately 2 kg, a laryngeal mask may provide a rescue airway when PPV with a face mask fails to achieve adequate ventilation and intubation is unsuccessful or not feasible.

Keywords: Neonate, Intubation, Airway

■Primary Immunodeficiency Disorders Among PICU Patients

Sharzad Bakhtiar [1*]

[1] University Hospital Frankfurt, Frankfurt, Germany

** Corresponding author:* University Hospital Frankfurt, Frankfurt, Germany.

Abstract

Admissions to the pediatric intensive care units (PICU) are due to a series of internal and external causes such as respiratory illnesses, acute infections, congenital anomalies, endocrine diseases, and injuries and trauma. While acute management focuses on treating organ failure and patient stabilization, the underlying cause of the acute condition might remain undetected. Physicians' awareness of possible primary immune deficiency disorders (PID) causing an acute condition or mimicking an acute condition is crucial for identifying the underlying disease. The knowledge of the clinical signs of a possibly PID-related condition and a detailed search for PID warning signs in patients' past medical history remain the most appropriate diagnostic steps towards the detection of the underlying PID. Herein, we present a series of the most common PID cases causing an acute illness in children resulting in a PICU admission and give an overview of clinical warning signs and diagnostic steps for each disease. The aim is to move toward early detection of the PID and initiation of disease-specific therapy, ideally preventing a PICU admission.

Keywords: Pediatric, Intensive Care, Primary Immune Deficiency

■Post Cardiac Arrest Care Supports in Pediatrics

Azita Behzad [1*], Seyedeh Narjes Ahmadizade [1], Seyedeh Masumeh Hashemi [1]

[1] Pediatric Intensive Care Department, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

** Corresponding author:* Pediatric Intensive Care Department, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: azitab57@gmail.com

Abstract

The outcome of resuscitation from Cardiac arrest, Shock, and Respiratory Failure depends on subsequent care the child receives. After the return of spontaneous circulation (ROSC), hemodynamic instability and respiratory complications can induce early mortality; also, multiorgan failure or brain injury causes late morbidity and mortality. Post-cardiac arrest management is optimal in two phases to stabilize the child. In the first phases (immediate), management focuses on ABC (airway, breathing and circulation) assess and support. In the second phase, broader multiorgan supportive care is done, and after the child is stabilized, coordinated transfer to a tertiary care setting is appropriate. In the immediate phases, to assess and support airway, oxygenation, and ventilation, we use diagnostic pieces of equipment such as capnography, Arterial Blood Gas, and CXR. To support circulation, we should maintain adequate blood pressure perfusion and treat arrhythmia. To assess adequate perfusion, lactate concentration, venous O2 saturation, and base deficit provide good information. In the second phase, assessing and managing Respiratory, Cardiovascular, and Neurologic systems is done. The goals of respiratory management are to maintain: (1) adequate oxygenation so oxygen must be titrated appropriately to the child's condition; and (2) adequate ventilation (target Paco2 appropriate to patient condition and avoid severe hypocapnia and hypercapnia) with intubation if other interventions do not achieve adequate ventilation. The goals of cardiovascular management are to maintain adequate blood pressure, cardiac output, and regular distribution of blood flow with the frequent assessment of heart rate, blood pressure, urine output, temperature,

lab tests such as hemoglobin, glucose, bun, creatinine, electrolytes and lactate and management of intravascular volume, tissue oxygenation, metabolic demand, Arrhythmia, and myocardial dysfunction. The other organ is the neurologic system. The management goals are to preserve brain function and prevent secondary neural injury. A general recommendation for this purpose is frequent monitoring of vital signs, GCS, cerebral herniation signs, and management of brain perfusion with support of cardiac output and avoid hypoventilation, treat hypoglycemia and hyperglycemia, preventing and aggressive treating fever, considering therapeutic.
Keywords: Children, Resuscitation

■General Aspects of Primary Immunodeficiency

Zahra Chavoshzadeh [1*]

[1] Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Human inborn errors of immunity comprise 406 distinct disorders with 430 different gene defects listed in the 2019 International Union of Immunological Societies (IUIS) classical classification. If most IEI is individually rare, they are collectively more common than generally thought. The range of clinical phenotypes attributed to IEI is also diversifying at full speed, with an unsuspected diversity of infectious, malignant, autoimmune, autoinflammatory, and allergic phenotypes being caused by monogenic lesions. About infections, too prolonged, too severe, too frequent infections with usual germs and any infections with unusual germs such as P. jirovici infection need the PID evaluation. Evaluation for PIDs in patients with early-onset, multiple, and/or atypical autoimmunity is recommended. It is well-known that some IEIs typically manifest with atopy along with other complications, including recurrent infections, autoimmune disorders, lymphoproliferation, and malignancy. Therefore, atopy in association with other well-recognized warning signs of IEIs should increase the possibility of an underlying IEI. For malignancy, PID evaluation is recommended for EBV-associated smooth muscle tumor, and childhood Kaposi sarcoma, very early onset lymphoma, HPV-associated cervical & anal cancers, and malignancy-associated with recurrent infections and autoimmunity.
Keywords: Primary Immune Deficiency, Infection

■Hypernatremia

Elham Emami [1*]

[1] Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Background: Hypernatremia is often due to unreplaced water that is lost from the gastrointestinal tract (vomiting or osmotic diarrhea), skin (sweat), or the urine (diabetes insipidus or an osmotic diuresis due to glycosuria in uncontrolled diabetes mellitus or increased urea excretion resulting from catabolism or recovery from kidney failure. Hypernatremia due to water loss is called dehydration. Indifference from hypovolemia, both salt and water are lost. Excessive water loss seldom leads to hypernatremia because the resulting increase in plasma osmolality stimulates thirst, which leads to increased intake of fluids that lowers the serum sodium within the normal range. Thus, in patients who have access to water, hypernatremia primarily occurs in those unable to sense or respond to thirst normally, most commonly seen in infants and adults with impaired mental status, particularly older adults. Here we ask an essential question that their answers are mesentery to approach hypernatremia. Is hypernatremia associated with severe hypovolemia? Isotonic Saline: Does the patient have severe symptoms or is asymptomatic? Patients can develop severe neurologic manifestations, including seizures, impaired mental status or coma, and death. These patients are typically treated initially with 4-6 ml/kg hypertonic saline 3%. Is hypernatremia acute or chronic? Hypernatremia developing over two or more days should be considered "chronic." What is the optimal rate of correction? Avoid overly rapid correction that can lead to a severe neurologic. Treatment is based on underlying etiology; if the patient suffers from hypernatremic dehydration, treatment will be an isotonic serum if overloaded with high blood. Pressure or edema due to water specialized and sub-specialized children's services and salt, the excess can be treated with diuretics or dialysis in severe cases such as oliguria or anuric patient in renal failure. If the hypernatremic patient has water deficit and dehydration in conditions like DI, low urine osmolality is present, and we can treat patient with this patient with desmopressin.
Keywords: Hypernatremia, Fluid, Treatment

■The Setting of Pediatric Palliative Care in Iran

Bibi Shahin Shamsian[1], Peyman Eshghi [1*], Nader Momtazmanesh[1], Shamsollah Nouripour [2], Leila Khanali Mojen [1], Azam Shirinabadi Farahani [1]

[1] Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[2] Neonatal Health Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sci-

ences, Tehran, Iran. Email: peshghi64@gmail.com

Abstract

Background: Palliative care is one of the critical concepts in caring for children with cancer that has emphasized its presentation and development. Providing operational experience in implementing pediatric palliative care in different countries, including Iran, can be used as an operational model in countries with almost the same conditions. Therefore, this study was conducted from the beginning to present the experiences and measures taken in establishing and providing palliative care for children in Iran.

Method: This study reports Iran's experience setting up an outpatient clinic for pediatric palliative care in 2021. Mofid Children's Hospital in Tehran designed the study. As a referral center from all over the country, this hospital has specialized and sub-specialized children's services.

Results: Based on the studies, using the experiences of other countries and the opinion of experts, four key vital elements, including sensitization, empowerment, guideline development. Furthermore, research for the implementation of this project was identified, and existing strengths and obstacles were reported.

Conclusion: The implementation of the pilot project of child palliative care in the country and the report of its results can change the attitude and increase the knowledge of other experts to pave the way for the development of these services throughout the country. This model can also be modeled in other countries with similar conditions.

Keywords: Children, Palliative Care

■Causes and Clinical Manifestation of Hypoxemia

Nafiseh Fadavi [1*]

[1] Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences, Tehran, Iran.

Abstract

Oxygenation is distributing oxygen from the alveoli to the pulmonary capillaries. Inadequate oxygenation is called hypoxemia, but hypoxia is an abnormally low oxygen content in a tissue or organ. So hypoxemia can be one of several causes of hypoxia. It can be caused by hypoventilation, ventilation-perfusion mismatch, right to left shunt, diffusion impairment, and reduced inspired oxygen tension. Causes of hypoventilation include CNS depression, obesity, impaired neural condition, muscular weakness, poor chest wall elasticity. V/Q mismatch is an imbalance of blood flow and ventilation caused by obstructive, vascular, or interstitial lung disease. Pulmonary fibrosis is the most common type of diffusion limitation in which the movement of oxygen from the alveoli to the pulmonary capillaries is impaired. Reduced inspired oxygen tension is most commonly due to high altitude. Symptoms of hypoxemia depend on age, severity, and duration of hypoxemia. In the presence of average hemoglobin concentration and cardiac output, PaO2 must acutely decrease to less than 50 to 60 mmHg before clinical manifestation appear. At this, most people have mild nausea, lightheadedness, and dizziness. PaO2 values from 35 to 50 mmHg cause mental confusion;

PaO2 less than 35 mm Hg reduces renal blood flow and impairs cardiac conduction. Loss of consciousness and respiratory center depression occur at the PaO2 value Less than 25 mmHg. Other early manifestations of hypoxia include anxiety, restlessness, headache, fatigue, euphoria, and cyanosis. Long-term complications of chronic hypoxia include clubbing, polycythemia, right ventricular hypertrophy, heart enlargement, and pulmonary hypertension.

Keywords: Pulmonary, Hypoxemia, Clinical

■Hypoxemia in Children: Diagnosis

Nazanin Farah Baksh [1*]

[1] Mofid Children's Hospital, Shahid Beheshti University of Medical Science, Tehran, Iran

[*] *Corresponding author:* Mofid Children's Hospital, Shahid Beheshti University of Medical Science, Tehran, Iran. Email: nazanin26farahbakhsh@yahoo.com

Abstract

Introduction: Oxygenation is the process of oxygen diffusing passively from the alveolus to the pulmonary capillary, where it binds to hemoglobin in red blood cells or dissolves into the plasma. The low partial pressure of oxygen in the blood is termed hypoxemia. There are numerous ways to measure whether oxygenation is impaired.

Background: Arterial oxygen saturation (SaO2), most oxygen diffuses from the alveolus to the pulmonary capillary binds to hemoglobin in red blood cells. The arterial oxygen saturation (SaO2) is the proportion of red blood cells whose hemoglobin is oxygen-bound. It could be measured noninvasively by pulse oximetry, but it could be measured by arterial blood gas. Abnormal SaO2 has not been defined because a threshold below which tissue hypoxia occurs has not been. It seems reasonable to consider a resting SaO2 $\leq$ 95 percent or exercise desaturation $\geq$ 5 percent abnormal, although these values should not be regarded as isolated. Arterial oxygen tension (PaO2); the amount of oxygen dissolved in the plasma, measured by arterial blIt seems reasonable to assume a PaO2. The alveolar to arterial (A-a) oxygen gradient is a standard measure of oxygenation. The average A-a gradient varies with age and can be estimated from the following equation, assuming the patient is breathing room air (A-a gradient = 2.5 + 0.21 x age in years). The PaO2/FiO2 ratio is another standard measure of oxygenation and is most

often employed in ventilated patients. A standard PaO2/FiO2 ratio is 300 to 500 mmHg, with values less than 300 mmHg indicating abnormal gas exchange and less than 200 mmHg showing severe hypoxemia. The arterial to alveolar (a-A) oxygen ratio is determined by dividing the PaO2 by the PaO2.

Conclusion: There are numerous ways to determine whether oxygenation is impaired and at risk of being insufficient to meet the metabolic requirements of the peripheral tissues. The arterial oxygen saturation (SaO2), arterial oxygen tension (PaO2), alveolar to arterial (A-a) oxygen Gradient, and the PaO2/fraction of inspired oxygen (FiO2) ratio are standard measures. Alternatively, the A-a oxygen ratio and the oxygenation index can be used.

Keywords: Hypoxemia, Children, Oxygenation, Diagnosis

■Carbon Monoxide poisoning; Do's and Don'ts

Fariba Farnaghi [1*]

[1] Shahid Beheshti University of Medical Sciences, Loghman Hakim Hospital, Tehran, Iran

[*] *Corresponding author:* Shahid Beheshti University of Medical Sciences, Loghman Hakim Hospital, Tehran, IranEmail, farnaghi@sbmu.ac.ir

Abstract

Carbon monoxide (the silent killer) is a colorless/odorless nonirritant gas potentially lethal, common, challenging, and often insufficiently treated pediatric emergency. Do not make mistakes. Early nonspecific symptoms easily mimic common childhood illnesses, including headaches, dizziness, weakness, nausea, and vomiting. Late advanced manifestations include Confusion, Chest pain, coma, respiratory distress, metabolic acidosis, hypotension, arrhythmia, syncope, Seizures, and cardiac arrest. Diagnosis based on history (no definite lab tests and pulse oximetry falsely detect O2 saturation) Early diagnosis has a crucial role in initiating targeted and timely treatment. For CO poisoned patients give appropriate highest percent high-flow oxygen by NRB (nonrebreather reservoir mask) 10 - 15 L/min O2 or intubate as soon as possible. Limit patient activity (complete bed rest). Both hypoglycemia & hyperglycemia are harmful. Treat hypotension with saline, Oxygen, and inotrope. Treat brain edema (head elevation, hypertonic saline, steroids)

Don'ts: Do not forget that noninvasive pulse oximetry paradoxically shows O2 Saturation normal/high normal despite significant hypoxia. Do not transfer CO poisoned patients without proper and efficient oxygen therapy such as intubation or NRB masks. Do not correct metabolic acidosis with sodium bicarbonate unless severe enough because of oxyHb dissociation curve left-ward shift. Hyperbaric oxygen (HBO) for critically CO poisoned pediatric patients is not available in Iran Instead, it is the best choice for oxygen therapy, in this case, intubation. Do not waste time on HBO therapy in Iran. For Rhabdomyolysis treatment in this poisoning, do not forget that overhydrating can exacerbate Brain and pulmonary edema. Do not forget that Oxygen is the first drug for patients with altered mental status. Do not forget concomitant cyanide poisoning for Fire victims. Do not Discharge unless the patient is symptoms-free with standard lab and COHb (< 5%).

Keywords: Carbon Monoxide, Poisoning, Children

■Covid Vaccination in Children

Roxana m. Ghanaiee[1*]

[1] Shahid Beheshti University of Medical Science, Tehran, Iran

[*] *Corresponding author:* Shahid Beheshti University of Medical Science, Tehran, Iran. Email: ghanaieroxana@gmail.com

Abstract

Hazards' trade-off benefits should be considered. COVID is usually not severe in children/vs. the fact of high transmission esp. adolescence with high social communications. MISC in children may be severe. The new COVID-19 variants spread more quickly and cause more severe diseases.

Millions of doses of the COVID-19 vaccine have been given, and there have only been 1,000 cases of heart inflammation.

CDC: Notes that for every million doses given, there have been 67 cases of heart inflammation in boys 12 to 17 (nine in girls of that age group), 56 in those aged 18 to 24 (six in girls), and 20 in males 25 to 29 (three in girls). That means the risk is relatively low. COVID-19 can affect the heart, too - not only as part of MIS-C, a multisystem inflammatory complication of COVID-19 seen in children but also just from the infection itself. COVID-19 can cause heart damage, including myocarditis. Our only way out of this pandemic is to get as many people vaccinated as possible, including young people. Vaccinated youth can safely go to school or camp, play sports, and be with their friends and families, all of which are important for their current and future health and well-being - and all of which were curtailed during the pandemic. The FDA reviewed a study of more than 2,259 U.S. children ages 12 through 15. Of this group, about half were given the Pfizer-BioNTech COVID-19 vaccine, and the other children were given an inactive (placebo) shot.

The results suggest that the vaccine is 100% effective at preventing COVID-19. In this age group, kids now make up an increasingly large share of the cases. There were at least American Academy of pediatrics 243,000 cases of COVID-19 in children from Sept 2 to Sept 9 Sept 9 in the U.S. (roughly 29% of all cases in the country).

Keywords: COVID-19, Vaccine, Children

■Inappropriate Lifestyle as an Effective Factor on Inflammation in Cystic

Fibrosis

Hanieh Tahermohammadi [1*]

[1]Department of Traditional Medicine, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Department of Traditional Medicine, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Cystic fibrosis (CF) is one of the most lethal autosomal recessive diseases due to the cystic fibrosis transmembrane conductance regulator (CFTR) mutation. The incidence of CF is about one in every 2000 to 3000 live births. CFTR mutation leads to thick and sticky secretions in the body's ducts with epithelial cells with CFTR protein, especially in the airways. Consequently leads to infection and inflammation in the airways. CF is a progressive disease that affects patients' pulmonary function, affecting patients' quality of life. In recent years, the use of complementary medicine to reduce the symptoms of CF has been considered by health care providers, and about 66% of patients with CF have used one of the complementary methods. This manuscript aimed to mention three influential lifestyle factors that affect airways inflammation. We found that pro-inflammatory components and gases in the air pollution increase the risk of antibiotic use, early acquisition of methicillin resistance Staphylococcus aureus (MRSA), and decrease pulmonary function in CF patients. Cold air leads to respiratory infection, airway inflammation, dryness, and thickening mucus. Anxiety influences the immune response, promote an elevation in sympathetic activity, increases IgE production, and shifts Th1 to Th2 allergic-type response, which could promote airway. Regular physical activity can modulate the autonomic balance and may enhance the physiological recovery of the vagal sympathetic interaction, which acts on the frequency of ciliary beats, mucus secretion, and mucociliary clearance. Also, exercise decreases pulmonary exacerbation frequency, reduces mucus viscosity and elasticity, and increases ventilation and respiratory flow. According to the mentioned results, we concluded that air pollution, cold environment, and anxiety might act as pro-inflammatory factors, and regular exercise may act as an anti-inflammatory factor for the respiratory system in CF patients. We suggest that more clinical studies should be done to confirm their effects.

Keywords: Patient, Cystic Fibrosis, Lifestyle

■Management of Elevated Intracranial Pressure (ICP) in Pediatric Intensive Care Unit

Seyedeh Masumeh Hashemi [1*], Seyedeh Narjes Ahmadizade 1, Azita Behzad [1]

1 Pediatric Intensive Care Department, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Pediatric Intensive Care Department, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: seyedeh.masumeh.hashemi@gmail,com

Abstract

Delay in treatment of elevated ICP is associated with poor outcomes. Emergency treatment is indicated in children with signs of brain herniation or symptomatic patients if the invasively measured ICP is ≥ 20 mmHg for longer than five minutes. According to the PALS, stability of Airway, Breathing, and Circulation is essential for successful treatment. Elevating the head from 15 to 30 degrees while maintaining a midline position, 1avoiding fever, pain control, and neurosurgeon consultation should be considered. Rapid sequence intubation by an experienced physician is indicated in children with refractory hypoxia, hypoventilation, GCS of ≤ 8 or GCS < 12, rapidly declining loss of airway protective reflexes, and acute herniation requiring controlled hyperventilation. PaCO2 should be maintained between 35 and 40 mmHg. Aggressive hyperventilation with PaCO2 <30 is indicated if there are clinical signs of acute herniation. High positive inspiratory pressure and high positive end-expiratory pressure should be avoided. Hypovolemia should be treated with isotonic fluids. The administration of hypotonic fluids should be avoided. Appropriate mean arterial pressure for age should be maintained using IV fluids and pharmacologic vasopressors (e.g., norepinephrine or phenylephrine), and bradycardia may require external pacing or administration of atropine. Hypertension reflects the body's compensatory mechanism to maintain cerebral perfusion pressure. Thus, antihypertensive treatment is contraindicated. For patients with brain herniation, initial hyperosmolar therapy should be started (IV mannitol or IV hypertonic saline). Hemoglobin is maintained > 7 g/dL, and hypoglycemia should be treated. Anticonvulsants should be given to patients at high risk for developing seizures (parenchymal abnormalities, depressed skull fractures, or severe traumatic brain injuries). The endotracheal tube tapped to the face, and lidocaine was administered before endotracheal tube suctioning to blunt the gag and cough responses. Refractory intracranial hypertension, CSF drainage, barbiturate coma, and surgical decompression are considered. Dexamethasone is recommended in patients with vasogenic edema caused by mass lesions (tumors or abscesses). Corticosteroids do not help manage elevated ICP caused by infarction, hemorrhage, or head trauma. Vasodilators, ketamine, hypotonic solutions, and prolonged propofol infusion are contraindicated.

Keywords: Intracranial, Pressure, Pediatric

■Typhlitis in Children with Cancer

Mozhgan Hashemieh [1*]

[1] Shahid Beheshti University of Medical Science, Tehran, Iran

* *Corresponding author:* Shahid Beheshti University of Medical Science, Tehran, Iran. Email: mozhganhashemieh@gmail.com

Abstract

Children with cancer are at increased risk of gastrointestinal (GI) complications, and in particular, enteritis, typhlitis, and colitis have been increasingly recognized over the last few decades. Typhlitis is the most actual abdominal oncologic emergency. This life-threatening condition is necrotizing colitis localized in the cecum occurs in the setting of severe neutropenia, especially in patients with leukemia and in stem cell transplant recipients. It should be strongly suspected in patients with right lower quadrant pain or the development of a partially obstructive right lower quadrant mass. It results from bacterial or fungal invasion of the mucosa and can quickly progress from inflammation to full-thickness infarction to perforation, peritonitis, and septic shock. Physical examination may reveal an absence of bowel sounds, bowel distention, tenderness on palpation maximal in the right lower quadrant, or a palpable mass in the right lower quadrant. Serial abdominal examinations are required for diagnosis. An abdomen radiograph may reveal pneumatosis intestinalis, free air in the peritoneum, or bowel wall thickening. Ultrasonography may show thickening of the bowel wall in the region of the cecum, and a CT scan is the definitive imaging modality. Medical management is the initial treatment, consisting of discontinuation of oral intake, nasogastric tube suctioning, broad-spectrum antibiotics (anaerobic and gram-negative coverage), and sometimes vasopressors, as needed. In Persistent GI bleeding despite resolution of neutropenia and thrombocytopenia, evidence of free air in the abdomen on abdominal radiograph or clinical deterioration, surgery is indicated. Surgery consists of removing necrotic positions of the bowel and diversion via colostomy. Healing can occur with fibrosis and stricture formation.

Keywords: Typhlitis, Cancer, Neutropenia

■Update of the National Protocol of Congenital Hypothyroidism

Mahin Hashemipour [1*], Setila Dalili[1]

[1] Isfahan University of Medical Science, Isfahan, Iran

* *Corresponding author:* Isfahan University of Medical Science, Isfahan, Iran. Email: main.hashemipour@yahoo.com

Abstract

Congenital hypothyroidism is one of the most common metabolic and endocrine disorders which cause mental retardation. Mental retardation is preventable if the disorder is diagnosed and treated during the early days of life. We evaluated the national congenital hypothyroidism protocol based on the latest guideline consensus. The following comments should be considered for proper diagnosis and treatment: (1) if the TSH level after the first week of life was 6 - 10 mIU/L, TSH should be retested 2 - 4 weeks later, and in the case of TSH was > 10 mIU/for two times, treatment should be continued for three years even though T4 was in the normal range; (2) in each case with a normal range of T4 and TSH = 10 - 20 mIU/L, TSH should be tested for the second time two weeks later, and if the result was the same as the first one,,, treatment should be continued for three years; (3) neonates with T4 < 6 μg/dL for two times or T4 < 3 μg/dL for three times, should be evaluated for other conditions with low T4 such as; anticonvulsant and corticosteroid therapy, Hypothalamic immaturity, preterm infants NTI, TBG deficiency, Central hypothyroid, and also Birth asphyxia in addition to hypothyroidism. If we did not find any cause for decreased T4, we must treat it as central hypothyroidism; (4) if TSH concentration is > 20 mIU/L, irrespective of the serum-free FT4, immediately needs treatment; (5) if the patient had persistent hyperthyrotropinemia > 10 mIU/L at six weeks, we recommend treatment. The goal of treatment is to obtain the following levels for T4 and TSH: 0.5 < TSH < 2 mIU/L and 10 < T4 < 16 μg/dL. Hypothyroid neonates should be followed as follow: (1) every 1 - 2 mounts during 1 - 6 mounts of life; (2) every 3 - 4 mounts during six mounts to 3 years.

Assessing Permanence of CH: At three years of age, four weeks after discontinuing the drug, if TSH > 10 mIU/L at least two occasions, it means true CH or if TSH was above 20.0 mIU/L in, a single blood collection. The patient should retreat.

Keywords: Hypothyroidism, Children, Mental Retardation

■Caustic Esophageal Injury in Children

Farid Imanzadeh [1]

[1] Pediatric Gastroenterology, Hepatology, and Nutrition Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Pediatric Gastroenterology, Hepatology, and Nutrition Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. ORCID No.: 0000-0003-0223-6431, Email: drimanzadeh@sbmu.ac.ir

Abstract

Accidental ingestion of caustic agents continues to be a significant concern for pediatric emergency department clinicians. Caustic ingestions are seen most often in young children between one and three years of age and can cause severe acute injury and long-term complications, especially the development of esophageal strictures. In 2015, 2.2 million toxic exposures in humans were reported in the United States, of which about half occurred in children five years or younger. The most commonly ingested caustic substances were household cleaning products (particularly household bleach), which accounted for 11 percent of the toxic ingestions in

young children and cosmetics or personal care products. Caustic ingestion is most common in young children between one and three years of age, with boys accounting for 50 to 62 percent of cases. Alkalis and acids produce tissue injury by different mechanisms: Alkaline agents tend to cause esophageal injury if the pH is above 11.5 - 12.5 via liquefaction necrosis. This type of injury led to early disintegration of the mucosa, allowing deep penetration and even perforation. Penetration into the esophageal wall by alkaline agents varies with the concentration and the length of time the agent remains in contact with the mucosa. Acids or corrosive agents tend to cause esophageal injury if the pH is less than two via coagulation necrosis. Compared with alkali agents, esophageal injury from acids tend to be attenuated, and perforation is less common because the coagulum that forms on the mucosal surface may limit deeper penetration of the caustic substance. The alkaline pH and squamous epithelium of the esophagus also help limit the severity of esophageal injury from acids. Despite these mitigating factors, 6 to 20 percent of acid ingestions result in esophageal burns Upper airway injuries also is familiar with ingestion of acids.

Keyword: Ingestion, Children

■Sleep Disorder

Narjes Jafari [1*]

[1] Pediatric Neurologist Faculty, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Corresponding author: Pediatric Neurologist Faculty, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: jafareadr@gmail.com

Abstract

Quality sleep is vital to a child's overall growth and development, and decreased sleep can negatively impact children's emotional, behavioral, and cognitive functioning. A nightly bedtime routine as a critical factor in the promotion of not only healthy sleep, but also of overall development and wellbeing in early childhood, and beyond improved sleep can see an array of positive developmental outcomes, inclusive of language development, literacy, child emotional and behavioral regulation, parent-child attachment, and improved family functioning. Short-term sleep loss can cause temporary cognition, behavior, and health difficulties. Moreover, unfortunately, chronic sleep loss can lead to neuronal and cognitive loss in children, which is generally unrecognized by the medical profession and people. Chronic sleep disturbances at any age deprive children of healthy environmental exposure, which is a prerequisite for cognitive growth during the critical developmental period. Sleep loss adversely affects pineal melatonin production, which causes disturbance of circadian physiology of cells, organs, neurochemicals, neuroprotective, and other metabolic functions. Through various mechanisms, sleep loss causes widespread deterioration of neuronal functions, memory and learning, gene expression, neurogenesis, and numerous other changes which cause a decline in cognition, behavior, and health. Excessive cellular stress results in widespread neuronal loss when these changes are long-standing. Effects of sleep deprivation on cognitive behavior are reversible in healthy adults, but deficits persist when sleep loss occurs in children (during critical periods of brain).

Keywords: Children, Sleep Disorder

■Psychogenic Non-epileptic Seizures

Mohsen Javadzadeh [1*]

[1] Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Corresponding author: Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: mohsen.javadzadeh@gmail.com

Abstract

PNESs, as the focus of this discussion, resemble epileptic seizures and present as a sudden, involuntary, time-limited alteration in behavior, motor activity, autonomic function, consciousness, or sensation. However, unlike epilepsy, PNESs do not result from epileptogenic pathology and are not accompanied by an epileptiform electrographic ictal pattern. Classic clues suggestive of a PNES: (1) ineffectiveness of multiple antiepileptic drugs; (2) induced by stress or emotional upset; (2) lack of physical injury; (3) lack of headache or myalgias following convulsions; (4) lack of incontinence; (5) history of sexual or physical abuse; (6) evidence suggestive of another conversion. Ictal characteristics that suggest PNES: (1) gradual onset of ictus; prolonged duration; (2) atypical or excessive motor activity (such as rolling from one side to the other, pelvic thrusting, or out-of-phase jerking; (3) waxing and waning amplitude; (4) intelligible speech; (5) bilateral motor activity with preserved consciousness; (6) clinical features that change from one spell to the next; (7) lack of postictal confusion; (8) postictal crying; (9) eyes closed during the ictus or resistance to eye-opening; (10) purposeful resistance to passive movements.

Keywords: Children, Non-epileptic, Seizures

■Survey of Parents of Children with Congenital Heart Disease Awareness of Children's Oral Health

Mohammad Reza Khalilian [1*], Foroogh Khalilinejad, Abdolrahman Emami Moghadam, Hosein Ghaderi

[1] Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Corresponding author: Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: khalilianomid@yahoo.com

Abstract

Background: Congenital heart disease (CHD) occurs in approximately 5 - 8: 1000 live birth. The increased survival rate of children with congenital heart disease has increased, and CHD now constitutes the predominant underlying condition for infective endocarditis (IE) in children over two years old.

Method: In a descriptive cross-sectional study, we assessed the dental knowledge, attitudes, and dental health practices of families of children with congenital heart disease through a questionnaire in a leading cardiac center in the southwest of Iran from March to September 2013. The clearance for the study was obtained from the pediatric cardiology department. The questionnaire was split into four categories: (1) oral hygiene habits; (2) gingival health awareness; (3) knowledge of dental and general health; and (4) attitudes toward professional dental care.

Results: A total of 468 subjects were included in the study whose children were between 2 to 16 years of age. Parents' information, knowledge, and awareness of dental and general health and oral hygiene habits among the population are given. In this study, parents of children with congenital heart disease's awareness of the need for antibiotic prophylaxis before dental procedures (5.76%) and awareness of infective endocarditis (2.99%) were low.

Conclusions: The results of this study indicated that parents' and children's attitudes toward oral health and dental care need to be improved. Due to their low awareness of oral health, educational planning should focus more on it. It is recommended that the appropriate information through mass media such as newspapers, TV, and radio, especially for large audiences, be considered.

Keywords: Children, Congenital, Cardiac

■Diagnosis and Management of Foreign Body Ingestion in Children

Katayoun Khatami [1*]

[1] Hepatology and Nutrition Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Hepatology and Nutrition Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: k_khatami@sbmu.ac.ir

Abstract

Foreign body ingestion is more common in children less than five years old. After taking a medical history and physical exam, a radiologic evaluation should be performed, including plain films of neck, chest, and abdomen in posteroanterior and lateral views. Lateral films, a CT scan, or barium swallow may be helpful in case of ingestion of radiolucent objects. Management of foreign body ingestions in children is challenging as patient size, type, location of an ingested object, clinical symptoms, duration of time since ingestion influences intervention. Most ingested objects pass through the GI tract spontaneously without complication. Indications for urgent endoscopic removal of the foreign body include signs of airway compression, signs of esophageal obstruction, button battery in the esophagus, objects lodged in the esophagus for more than 24 hours, two or more magnets, sharp or long ingested objects. Surgery should be considered for the patient in case of intestinal obstruction, perforation, or when endoscopic removal of the foreign body is impossible. Using a foley catheter to remove coins and blunt foreign bodies from the esophagus is recommended if endoscopic expertise is unavailable and the foreign body has been lodged no longer than 24 hours in the esophagus, and there is no edema, and an expert person should perform it. The proteolytic enzyme is not recommended for food impaction due to complications. For objects in the stomach (other than the battery, magnet, sharp or long objects), if the patient has no symptom, the approach is conservative, but if the object remains for more than four weeks, it should be removed.

Keywords: Foreign Body, Children, Ingestion

■Renal Failure and Bilateral Hydronephrosis as Signs of Extramedullary Acute Myelogenous Leukemia

Fatemeh Malek [1*], Fereshteh karbasian [2]

[1] Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[2] Department of Pediatric Gastroenterology, Shiraz University of Medical Sciences, Shiraz, Iran

[*] *Corresponding author:* Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: Fmalek7721@gmail.com

Abstract

Extramedullary leukemia is prevalent in pediatric acute myeloid. Leukemia (AML) transpires as a solid tumor (myeloid sarcoma). Myeloid sarcomaseen in patients with leukemia may occupy any part of the body. The most popular sites for MS deposits are skin (leukemia cutis), lymph nodes, bones, gastrointestinal tract, soft tissues, and gingivae. The spinal column is much less generally affected, with a 13 - 19% incidence rate. The thoracic spine (64%) is the most frequent site, accompanied by the lumbar, sacral, and cervical spine with a frequency rate of 29, 20, and 5%, respectively. We summarize a case of a three-year-old girl initially diagnosed as an AML M4 who presented with acute onset of renal failure that found a sizeable paravertebral mass encasing bilateral ureters and causing bilateral hydronephrosis. Subsequently, hemodialysis and chemotherapy after that initiated. Later she was in remission, myeloid sarcoma was cleared from the paravertebral region, and bilateral hydronephrosis was resolved. Creatinine level was within the standard

limit. Timely diagnosis and initiation of treatment are essential to improve survival in such cases.
Keywords: Acute Myeloid Leukemia, Hydronephrosis, Chemotherapy

■Approach to Hypoxia

Matin Pourghasem [1*]

[1] Pediatric pulmonologist

** Corresponding author:* Pediatric pulmonologist.

Abstract

In hypoxia, four general categories should be considered: hypoxemic, anemic, ischemic & histotoxic. When the diagnosis of hypoxemic hypoxia is made, we need to find out which of the following is affected by the disease: (1) alveolar oxygenation; (2) alveolar membrane diffusion; (3) binding of oxygen to hemoglobin; (4) balanced ventilation/perfusion. A diagnostic algorithm can be designed to clarify the underlying disease based on the arterial-alveolar gradients and response to oxygen supplements. In alveolar oxygenation disorder, two primary differential diagnoses must be kept in mind: hypoventilation & decreased FIO2, such as high altitudes. There is no gradient abnormality in both, and hypoxemia responds to oxygen supplements. In addition, there is an increase in arterial CO2 tension in hypoventilation disorders such as CNS depression neuromuscular & chest wall disease. In diffusion abnormalities, the signs of hypoxemia worsen with activity and improve with oxygen consumption. These include pulmonary vascular & alveolar-interstitial disease. In the presence of ineffective oxygen binding, such as CO poisoning, we expect the gradient not to change and to respond to oxygen supplements. There will be an increase in gradient in ventilation and perfusion imbalance disorders, and the differences are in response to oxygen. In the case of a V/Q mismatch, oxygen response is expected, while in Shunt, there is no such answer.
Keywords: Hypoxia, Ventilation, Hypoxemia

■Multisystem Inflammatory Syndrome in Children (MIS-C): Clinical Manifestation, Evaluation & Diagnosis

Fatemeh Fereshteh Mehregan [1*]

[1] Shahid Beheshti University of Medical Sciences, Tehran, Iran

** Corresponding author:* Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: fmehregan@gmail.com

Abstract

Objective: Multisystem inflammatory syndrome in children (MIS-C) associated with Coronavirus disease (COVID-19) is a rare diagnosis requiring early treatment. The diagnostic criteria involve clinical, laboratory, complementary tests and exclude other infectious or noninfectious (malignancy, rheumatic disease) with a similar presentation.

Results: COVID-19 infection is less severe in children than in adults but can present as MIS-C, even in patients without comorbidities. There is evidence of an exaggerated inflammatory response with potential systemic hurt, and it may present with aspects similar to those of macrophage activation syndrome, Kawasaki disease, and toxic shock syndrome. MIS-C can develop 2 - 6 weeks after COVID-19 infection, suggesting a post-inflammatory immune-mediated cause. The most frequent clinical features include persistent fever, gastrointestinal symptoms (abdominal pain, vomiting, and diarrhea), rash, mucous membrane changes, and cardiac dysfunction followed by the development of shock and multisystem involvement. Elevated inflammatory markers (like CRP, ESR, neutrophilia, and Ferritin), lymphopenia, and coagulopathy (like D-dimer, fibrinogen, PT, PTT) are standard laboratory results. Supportive treatment and early immunomodulation can control the intense inflammatory response and reduce complications and mortality.

Conclusions: MIS-C associated with COVID-19 is serious, rare, and potentially fatal. The emergency department pediatrician must recognize and treat it early using immunomodulatory strategies to reduce systemic hurt.
Keywords: COVID-19, Immunomodulatory, Children

■Anaphylaxis to COVID-19 Vaccines

Mehrnaz Mesdaghi [1*]

[1] Shahid Beheshti University of Medical Sciences, Tehran, Iran

** Corresponding author:* Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: mehrnaz_mesdaghi@yahoo.com

Abstract

Severe allergic reactions to vaccines are rare and occur approximately once per million administrations. The most severe form of an immediate reaction is anaphylaxis, usually IgE-mediated, and may cause death. Immediate reactions with features of anaphylaxis have been reported after immunization with COVID-19 vaccines, mainly after the mRNA vaccines. The reported incidence of 2.5 to 4.7 events per million administrations of mRNA vaccines is higher than reported rates of anaphylaxis (1 per million) with other vaccines. Anaphylaxis after injection of other COVID-19 vaccines has also been reported, although to a lesser extent. Many individuals who experienced possible anaphylaxis to COVID-19 vaccines had a history of allergy to various other allergens. While a history of anaphylaxis to other substances (e.g., foods, drugs, insect stings) is not a contraindication to vaccination, it is recommended that such individuals remain for 30 minutes of observation after receiving the injection, rather than the 15 minutes recommended for all other vaccine recipients. History of anaphylaxis after receiving

other vaccines or the first dose of COVID-19 vaccine is a contraindication of COVID-19 vaccine injection. As with any vaccine, all vaccination sites should be equipped with the medications (epinephrine) and staff required to treat possible anaphylactic reactions. Mast cell-mediated reactions may involve various combinations of up to 40 potential symptoms and signs, which typically begin within minutes to an hour of vaccination, but can rarely be delayed beyond this time frame. It is also essential to understand that some other reactions to vaccines can mimic anaphylaxis, including vasovagal reactions and anxiety-related symptoms.

Keywords: Allergic Reaction, Vaccine

■Clinical Characteristics of Children with COVID-19 Complicated by Acute Kidney Injury; a Referral Center Experience

Masoumeh Mohkam [1*], Mahbube Mirzaee [1], Mahnaz Jamee [1], Seyed Mohammad Taghi Hosseini Tabatabaei [1]

[1] Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: mohkam@sbmu.ac.ir

Abstract

Introduction: Renal disorders are reported as both underlying conditions (such as hydronephrosis, chronic kidney disease, kidney anomalies) and complications (acute kidney injury, hematuria, proteinuria, hypertension) of COVID-19 infection, particularly in critically ill pediatric patients. Early diagnosis of kidney involvement and application of appropriate treatment can help prevent long-term complications and may be a determining factor in reducing the mortality rate. In this viewpoint, we aimed to investigate the pattern of renal involvement, particularly acute kidney injury (AKI), among pediatric patients with COVID-19.

Method: From March 1 to December 30, 2020, we prospectively enrolled 187 pediatric patients admitted to Mofid Children's Hospital with the clinical diagnosis of COVID-19 infection. Demographic, clinical, and laboratory findings were gathered and analyzed using a mixed method of qualitative and quantitative approaches and descriptive statistics.

Results: One hundred eighty-seven patients, including 120 (64.2%) male and 67 (35.8%) females with COVID-19 infection at a median (interquartile range) of 60 (24 - 114) months, were enrolled in this study. Most patients (n = 108, 58.1%) were suffered from one or two underlying comorbidities, mainly malnutrition (77.4%), neurologic/learning disorders (21.4%), and malignancy (10.2%). The kidney was the third organ involved in 30 patients (16%) during hospital admission, after lung (53.5%) and gastrointestinal tract (39%). According to the KDIGO classification, AKI was detected in 38.5% of patients (stage 1: 55.6%, stage 2: 36.1%, stage 3: 8.3%) at presentation or follow-up. Nine patients (4.8%) required hemodialysis, and 16 (8.6%) patients were eventually died. There was no significant association between AKI and pediatric intensive care unit (PICU) admission (P = 0.079), a multisystem inflammatory syndrome in children (MIS-C) (P = 0.051), comorbidities (P = 0.067), and mortality rate (P = 0.789).

Conclusions: Along with the lungs and gastrointestinal tract, the kidneys are major organs affected by COVID-19. Although kidney abnormalities resolve in most pediatric COVID-19 infections, particular attention should be given to kidney involvement in COVID-19 patients, particularly children with a history of malnutrition and renal disorders.

Keywords: COVID-19, Renal Injury, Children

■Antenatal Hydronephrosis

Masoumeh Mohkam [1*], Atena Seifi [1]

[1] Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: mohkam@sbmu.ac.ir

Abstract

Antenatal hydronephrosis (ANH) is one of the most prevalent prenatal ultrasonographic problems in 1 - 5% of pregnancies. Fetal or prenatal hydronephrosis is detected in several cases after the gestational age of 30 weeks. When detecting hydronephrosis, the dilatation rate of the ureter is calculated by measuring the anterior-posterior diameter of the pelvis, which depends on the gestational age. Most studies suggest that the anterior-posterior diameter (APD) of more than 7 mm at the end of pregnancy indicates fetal hydronephrosis and requires post-natal examination. Ureteropelvic junction obstruction (UPJO) and vesicoureteral reflux (VUR) are the most common causes of hydronephrosis in these patients. The first post-natal bladder kidney ultrasound (US) must be delayed for a week to avoid the false-negative results produced by the US within the first 24 - 48 h. An initial typical post-natal US in children with AHN may be misleading, so the second US at six weeks is necessary. One of the main concerns of families having children with hydronephrosis is knowing the future of this condition. Studies have shown that children with prenatal hydronephrosis may be at risk for post-natal anomalies, but the likelihood of a patient having a significant post-natal renal abnormality is proportional to the severity of the ANH. It should be emphasized that prognosis in fetal hydronephrosis is utterly dependent on the severity of ANH and the under-

lying etiology of the disease. Conservative management has developed for several urological conditions in recent years, and currently, only < 5% of patients with ANH will ultimately require surgery.
Keywords: Antenatal, Hydronephrosis, Ureter

■A Myelodysplastic Syndrome Evolution

Nader Momtazmanesh [1*]

[1] Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: momtazmanesh@gmail.com

Abstract

An eight-year-old boy was referred to our outpatient clinic due to thrombocytopenia. Our patient was suffering from enuresis, and incidental thrombocytopenia was revealed in assessments. The serial CBCs showed evolution to bicytopenia (leucopenia). The thrombocytopenia range was between 39000 to 50000. No significant finding in the physical examination was found except mild transient splenomegaly. The patient underwent Bone Marrow aspiration, which was in favor of Myelodysplastic syndrome due to the finding of the dyserythropoiesis and roughly 7 % of myeloid blasts. The patient was under observation serial CBC's was suggestive of Bicytopenia. The second time Bone Marrow Aspiration revealed the increasing number of blasts a month later. However, the number was around 11 percent, but it suggested that our patient would be evolving to acute myeloid leukemia. So close observation considered the third bone marrow aspiration morphology and immune phenotype revealed the AML M2 diagnosis. Translocations and cytogenetic were only in favor of WT1. The patient received chemotherapy based on the first course of MRC Protocol. Our patient had been suffering from myelodysplastic syndrome since a minimum of 4 months ago when his bicytopenia showed up. Pediatric myelodysplastic syndrome (MDS) is an orphan disease diagnosed in one to four individuals per million children annually. It is realized that scarcely 30% of cases of pediatric MDS arise from inherited bone marrow failure syndromes, many of which are associated with enhanced toxicity of standard chemotherapies. Myelodysplastic syndromes (MDS) are heterogeneous clonal hematologicalmalignancies characterized by ineffective hematopoiesis resulting in cytopenia, dysplasia, and risk of clonal evolution to acute myeloid leukemia. Patients with MDS can present single or multiple recurring chromosomal abnormalities. Pediatric MDS is a rare disease representing only 4% of all hematological malignancies in children. It is classified into refractory cytopenia of childhood (RCC) and advanced MDS, termed MDS - excess blasts (MDS-EB). Etiologically, MDS is classified into primary (previously healthy patients, some of whom may harbor as yet undefined germline mutations) and secondary disease (patients who have prior exposure to cytotoxic therapy, or those who have prior inherited BM failure disorders or other genetic predispositions to MDS.
Keywords: Acute Myeloid Leukemia, Bone Marrow Failure

■Neonatal Thrombosis and Related Risk Factors

Shamallah Nouripour [1*]

1 Neonatal Health Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Neonatal Health Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: sh.noripour@yahoo.com

Abstract

During the neonatal period, the likelihood of thrombotic complications is very higher than at any other childhood age. Neonatal Thrombosis, arterial and venous, is a rare event, but it must be emphasized that condition are life-threatening and often underdiagnosed. The occurrence of Neonatal Thrombosis is due to the instability of the hemostatic state and exposure to multiple risk factors and the wide use of vascular catheters. Spontaneous and non-catheter related thrombosis are relatively uncommon and the most common of thrombotic condition is renal vein thrombosis. Neonatal hemostasis system is somewhat different from other ages. Compared to adults, the amount of vitamin K dependent pro coagulant proteins and contact factors are reduced. Conversely, levels of proteins C and S, antithrombin and heparin cofactor II are low at birth. Changes in the fibrinolysis system include decreased plasminogen and alpha-1-antiplasmin levels, as well an increase tissue plasminogen activator. These characteristics are more prominent in premature infants.
Keywords: Neonate, Thrombosis

■Phototherapy

Farzaneh Palizban [1*]

[1] Clinical Research Development Center, Mahdieh Educational Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Clinical Research Development Center, Mahdieh Educational Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: palizbanfarzaneh@gmail.com

Abstract

Almost all newborns showed hyperbilirubinemia. Term and late preterm infants (gestational age ≥ 35 weeks) with a TB > 25 mg/dL (428 μmol/L) or "severe" hyperbilirubinemia are at risk for developing bilirubin-induced neurologic dysfunction (BIND), which occurs when bilirubin crosses the blood-brain barrier and binds to brain tissue

resulting in brain injury if not treated appropriately. The interventions used to reduce TB levels for neonates with hyperbilirubinemia are enhanced enteral feeds, phototherapy, and exchange transfusion. Phototherapy, using light of specific wavelengths and doses, is considered a safe and effective intervention to reduce total serum bilirubin. Phototherapy, using approved light sources, is the most common treatment for preventing the development of TB > 20 mg/dL (342 μmol/L). Nevertheless, there is some evidence that phototherapy may have long-term adverse risks, and its overuse may unnecessarily prolong birth hospitalization and impede maternal bonding and breastfeeding. As a result, phototherapy must be treated like any other medication and administered using regulated and approved devices. Clinical judgment is required to ensure appropriate and correct dosing of phototherapy based on a risk/benefit assessment for the newborn, thereby avoiding under- or overuse of phototherapy.

Efficacy: Phototherapy reduces TB concentrations and decreases the rate of rising of TB in almost all cases of hyperbilirubinemia, regardless of the patient's ethnicity or the etiology of the hyperbilirubinemia. The primary benefit of phototherapy is to prevent the TB from rising to a level at which exchange transfusion is recommended. Phototherapy might also decrease the risk of the development of chronic bilirubin encephalopathy (CBE), previously referred to as kernicterus, although the recommended treatment thresholds for phototherapy are generally considered to be well below those at which bilirubin neurotoxicity occurs. Effective phototherapy declines TB of at least 2 to 3 mg/dL within four to six hours. A decrease in TB can be measured as soon as two hours after initiation of treatment. Twenty-four hours of phototherapy can effectively result in a 25 to 45 percent decrease in initial TB levels.

Keywords: Phototherapy, Neonate, Hyperbilirubinemia

■The Biologics in Multisystem Inflammatory System in Children

Vadood Javadi [1*]

[1] Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: vadoodj@gmail.com

Abstract

Multisystem inflammatory syndrome in children (MIS-C) is a hyperinflammatory state that occurs about two to four weeks after the SARS CoV-2 in the human body. It can potentially involve any organ and cause Kawasaki-like disease, shock with or without ventricular dysfunction, and fever with inflammation. The treatment includes some medications depending on the patient's situation. Asymptomatic children and mild COVID-19 do not need the anti-rheumatic agents. In some moderate and severe COVID-19, the management includes intravenous immune globulin (IVIG) and corticosteroids. The first trial of corticosteroid begins with low to moderate doses, and in refractory cases, it switches to high doses of intravenous methylprednisolone for 1 - 3 consecutive days. In contrast to classic Kawasaki disease, the second dose of IVIG is not recommended in IVIG-resistant cases because of volume overload. In refractory disease or in patients who cannot receive glucocorticoids, there may be rationality for the usage of biologic agents after consulting with a pediatric rheumatologist. The refractory disease could include any of the following: persistent fever more than 24 hours post-treatment., ferritin more than 1000 ng/mL post-treatment, worsening echocardiographic findings, and physician global discretion if the patient fails to improve. High dose Anakinra should be considered the first choice for treatment of MIS-C refractory to IVIG and glucocorticoids in patients with MIS-C and features of macrophage activation syndrome (MAS) or patients with contraindications to long-term use of corticosteroids. Infliximab may be used as an alternative biologic agent in these situations except in features of MIS-C and MAS. Furthermore, infliximab may be considered second-line therapy in patients with MIS-C who have persistent inflammation or myocardial dysfunction. Some researchers recommend it in conjunction with IVIG as initial therapy, although further data are needed.

Keywords: Children, COVID-19, Inflammatory

■Side Effects and Contraindications of COVID-19 Vaccines

Shirin Sayyahfar [1*]

[1] Research Center of Pediatric Infectious Diseases, Institute of Immunology and Infectious Diseases, School of Medicine, Iran University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Research Center of Pediatric Infectious Diseases, Institute of Immunology and Infectious Diseases, School of Medicine, Iran University of Medical Sciences, Tehran, Iran. Email: sayyahfar. sh@iums.ac.ir

Abstract

The side effects of COVID-19 vaccines can be divided into three categories: (1) common but non-significant complications; (2) uncommon but significant complications; (3) complications that currently have no causal relationship with the COVID-19 vaccine and are more commonly referred to as associations. Non-significant complications can be local or systemic, such as pain at the injection site, swelling, redness, axillary lymphadenopathy on the injection site, fever, chills, headache, nausea, tiredness, joints pain, nausea and vomiting. Significant side effects include the following four: (1) anaphylaxis; (2) myocarditis/pericarditis; (3) thrombosis with thrombocytopenia syndrome (TTS); (4) Guillain-Barre syndrome. Cases such as tinnitus, Bell's palsy, pulmonary embolism, and deep vein thrombosis (DVT) without further thrombocytope-

nia are now referred to as associations.

Thrombosis with Thrombocytopenia Syndrome: Currently, adenovirus vector vaccines such as AstraZeneca and Johnson & Johnson vaccines are accused of causing these two complications, and mRNA vaccines have not been shown to produce such a complication.

Myocarditis/Pericarditis: mRNA vaccines such as Pfizer and Moderna have been implicated in causing this complication, and no adenovirus vector vaccines such as Johnson & Johnson have been reported.

Contraindications to the Injection of COVID-19 Vaccines: Any immediate allergic reaction to the vaccine or its associated ingredients with any severity such as anaphylaxis and urticaria that occurs within 4 hours of injection.

Precautions for COVID-19 Vaccines:

History of any Immediate Allergies to Other Vaccines and Injectable Drugs: A history of anaphylaxis to mRNA vaccines for Johnson & Johnson vaccine and a history of anaphylaxis to Johnson & Johnson vaccine for mRNA vaccines is considered a precaution. If you have a history of heparin-induced thrombocytopenia within the last 90 days, the CDC recommends that you do not get AstraZeneca, and Johnson & Johnson vaccine. However, a history of any thrombotic events without thrombocytopenia is not prohibited for any type of corona vaccine.

Items that are Neither Contraindications nor Precautions: Presence of erythematous skin lesions with a sharp border at the injection site, usually one week after receiving the mRNA vaccine

Consumption of Anticoagulants: Swelling of the face at the site of application of cosmetic skin fillers following the use of mRNA vaccine

Keywords: COVID-19 Vaccine, Contraindication, Side Effect

■Epidemiology and Pathophysiology of Foreign Bodies of the Esophagus and Gastrointestinal Tract in Children

Aliakbar Sayyari [1*]

[1] Pediatric Gastroenterology, Hepatology, and Nutrition Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

** Corresponding author:* Pediatric Gastroenterology, Hepatology, and Nutrition Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: drsayyari@hotmail.com

Abstract

The majority of foreign body ingestions occur in children between six months and three years. Their parents brought most cases are brought to medical attention by their parents because the ingestion was witnessed or reported to them. Many of the children are asymptomatic or have transient symptoms at the ingestion. Many children with esophageal foreign bodies are asymptomatic or have transient symptoms during the ingestion, such as retrosternal pain, cyanosis, or dysphagia. When symptoms do occur, they may include a sensation of something stuck in the chest, refusal of feeds or dysphagia, drooling, or respiratory symptoms, including wheezing, stridor, or choking. Patients with long-standing esophageal foreign bodies may present with weight loss, aspiration pneumonia, fever, or signs and symptoms of esophageal perforation, including crepitus, pneumomediastinum, or gastrointestinal bleeding. Urgent and sometimes emergent intervention to remove a foreign body is indicated in the following situations: (1) when the object is sharp, long, or consists of magnets or a superabsorbent polymer; (2) when the object is a disk battery in the esophagus; (3) if airway compromise, such as tracheal compression, is present; (4) if there is evidence of esophageal obstruction (e.g., the patient is unable to swallow secretions); (5) if there are signs or symptoms suggesting inflammation or intestinal obstruction (fever, abdominal pain, or vomiting); (6) the object is in the esophagus, and the suspected ingestion occurred 24 or more hours prior to the evaluation, or if the time of ingestion is unknown.

Keywords: Foreign Body, Children

■Hematopoietic Stem Cell Transplantation (HSCT) in Children

Bibi Shahin Shamsian [1*]

[1] Pediatric Congenital Hematologic Disorders Research Center, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

** Corresponding author:* Pediatric Congenital Hematologic Disorders Research Center, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: shahinshamsian@gmail.com

Abstract:

Bone marrow transplantation (BMT) is called, recently as hematopoietic stem cell transplantation (HSCT) (with the introduction of other stem cell sources including peripheral blood stem cell (PBSC) & cord (CB). Hematopoietic stem cell transplantation (HSCT) is currently utilized as a treatment option for various life-threatening conditions affecting children and young adults, including hematologic, non-hematologic, hereditary or acquired disease, malignant and malignant non-malignant disease. Some of these disorders are; leukemia, lymphoma, neuroblastoma, brain tumors, inherited immune deficiency syndromes, blood disorders, and inherited metabolic diseases. Type of hematopoietic stem cell transplantation include: (1) ALLOGENIC, cells from another person (sibling, MRD, unrelated donor, parent or relative); (2) AUTOLOGOUS, Own cells; (3) SYNGENIC, identical twins. Sources of HSCT are as follow (1) bone marrow (BM); (2) peripheral blood (PB); (3) cord blood (CB). The most important criteria for allogenic HSCT are HLA typing and finding a Match donor. During the last 2 - 3 decades, the outcome of pediatric HSCT has improved duo to molecular (low &

high resolution) HLA typing and better supportive care. HSCT outcome in children depends on many factors: Type of transplant, Donor and recipients characteristics, immune suppressive therapy, and immune recovery. One of the most critical complications post allogeneic HSCT is graft versus host disease, acute and chronic (GVHD) despite GVHD prophylaxis. In patients with acute GVHD, skin, gastrointestinal system, and liver is susceptible to involvement during the first three months post-HSCT.

So evaluation of patients post HSCT for early diagnosis is necessary. The other complications are muliple kinds of infections mostly bacterial, viral, and fungal infections.

Keywords: Hematopoietic Stem Cell Transplantation, Children, Graft Versus Host

■Co-administration of COVID-19 Vaccine and Routine Vaccines and Influenza Vaccine

Fariba Shirvani 1*

1 Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: shirvanifariba@rocketmail.com

Abstract

COVID-19 vaccines may be administered without regard to the timing of other vaccines. Label each syringe with the name and the dosage (amount) of the vaccine, lot number, the initials of the preparer, and the exact beyond-use time, if applicable. There are no requirements which vaccine is administered first. If multiple vaccines are administered at a single visit, administer each injection in a different injection site. Separate injection sites by 1 inch or more, if possible. Administer the COVID-19 vaccines and vaccines that may be more likely to cause a local reaction in different limbs, if possible. COVID-19 vaccines can be co-administered with the influenza vaccine during the same visit. Vaccines administered at the same visit should be given at different sites (separated by an inch or more, if possible). If a local reaction does occur, the physician can identify which vaccine may have been responsible. Physicians should document the precise location in the patient's chart for reference. Use a separate limb from COVID-19 vaccine limb in adjuvanted inactivated influenza vaccine (a) and High-dose inactivated influenza vaccine. It is recommended to use the influenza vaccine during the COVID-19 pandemic.

Keywords: Vaccination, COVID-19

■Emergency in UTI

Seyyed Mohammad Taghi Hosseini Tabatabaei 1*

[1] Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: hosttab38@yahoo.com

Abstract

Introduction: Urinary tract infections (UTI) are a common and important clinical problem in childhood. Upper urinary tract infections (acute pyelonephritis) may lead to renalscarring, hypertension, and end-stage kidney disease. Although children with pyelonephritis tend to present with fever, it can be difficult on clinical grounds to distinguish cystitis from pyelonephritis, particularly in young children (those younger than two years). The goals of treatment for UTI include: (1) elimination of infection and prevention of urosepsis; (2) relief of acute symptoms (fever, dysuria, frequency and etc.); (3) prevention of recurrence and long-term complications including hypertension, renal scarring, and impaired renal growth and function. Most children with UTI can be managed as outpatients. Indications for hospitalization include age < 2 months, clinical urosepsis, immunocompromised patient, vomiting or inability to tolerate oral medication, lack of outpatient follow-up, and failure to respond to outpatient therapy. Empiric antimicrobial therapy immediately after appropriate urine collection is warranted in children with a high probability of UTI based on the clinical and laboratory data available. This is particularly true for young children with fever (especially if > 39°C or > 48 hours), ill appearance, costovertebral angle tenderness, known immune deficiency, or known urologic abnormality.Febrile children are usually treated for 10 days. Afebrile children are usually treated for shorter periods (3 to 5 days). The clinical condition of most patients improves within 24 to 48 hours of initiation of appropriate antimicrobial therapy. In children whose clinical condition worsens or fails to improve as expected within 48 to 72 hours of initiation of antimicrobial therapy, broadening of empiric therapy may be indicated. The majority of children with UTI have no long-term sequelae.

Keywords: UTI, Empiric Therapy, Acute Pyelonephritis

■Echocardiographic Evaluation of Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19

Tahmineh Tahouri [1, 2*]

[1] Shahid Modarres Educational Hospital, Tehran, Iran

[2] Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: Tahmineh.tahouri@hotmail.com

Abstract

Cardiac involvement is an observable issue in multisystem inflammatory syndrome in children (MIS-C) associ-

ated with COVID-19. The most common echocardiographic findings in MIS-C are abnormal coronary arteries, decreased left ventricular function, mitral regurgitation, and pericardial effusion. Abnormalities in the coronary arteries were seen in less than 20% of MIS-C patients. These abnormalities include dilatation or aneurysms in the coronary arteries; however, giant or large aneurysms are rare. On the other hand, transient coronary artery dilatation (which can occur secondary to viral myocarditis) may also mean that the coronary artery Z-scores never exceed 2.5. Reviewing large case series revealed that approximately 30 - 40% of MIS-C patients had decreased left ventricular function. In most cases, left ventricular function is mildly depressed, and severe left ventricular dysfunction was observed in only one-fifth of cases. Hypoxia, myocardial ischemia secondary to coronary involvement, stress-induced cardiomyopathy, injury caused by systemic inflammation, and viral myocarditis are the possible etiologies for the myocardial injury in MIS-C. It is now clear that myocardial strain imaging indices such as a global longitudinal strain (GLS), end-diastolic strain rate (EDSR), and peak left atrial strain (LAS) can demonstrate systolic or diastolic dysfunction in myocarditis patients with preserved left ventricular ejection fraction. Furthermore, right-sided ventricular deformation imaging abnormalities have been reported in adult patients with MIS-C. Less information is currently available on mitral regurgitation and pericardial effusion in pediatric patients with MIS-C; however, in an extensive study on 286 pediatric patients with MIS-C, 28% had pericardial effusion, and 42.7% had mitral regurgitation; both were mild in most patients.

Keywords: COVID-19, Cardiac Involvement, Pediatric

■Treatment of Refractory Intracranial Hypertension in Children

Victoria Cheghini [1*]

1 Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

** Corresponding author:* Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: victoria_che@yahoo.com

Abstract

Refractory intracranial hypertension occurs in 20 to 40% of cases of severe Pediatric TBI and is associated with 0 to 100% mortality rates. Decisions regarding the next steps in patients whose intracranial hypertension cannot be controlled by medical management (first and second line) and who do not have a specific surgical treatment for the underlying cause should be guided by a neurosurgeon with pediatric intensivist. Treatment of intracranial pressure targeting a threshold of < 20 mmHg is suggested. CPP target between 40 and 50 mmHg is suggested (minimum value of 40 mmHg). Several Third-tier therapies are available for treatment of refractory intracranial Hypertension: (1) barbiturates; (2) hyperventilation; (3) hypothermia; (4) Bolus of 23.4% hypertonic saline; (5) DE compressive craniotomy; (6) Cerebrospinal fluid drainage. Barbiturates are used to treat intracranial hypertension that is refractory to other modalities. Loading dose: 10 mg/kg over 30 minutes followed by 5 mg/kg every hour for three doses, and then initial maintenance infusion: 1 to 2 mg/kg/h adjust to maintain burst suppression on EEG. There is no evidence to support the prophylactic use of barbiturates in patients with elevated ICP.

Hyperventilation: Hyperventilation is one of the fastest methods to lower ICP in a child with impending herniation. If hyperventilation is used in the management of refractory intracranial hypertension, advanced neuromonitoring is suggested. Prophylactic severe hyperventilation to a PaCO2 < 30 mm Hg after injury is not suggested. Hypothermia Moderate (32 to 33°C) hypothermia (core temperature) is suggested for ICP control. If hypothermia is used and rewarming is initiated, it should be carried out at a rate of 0.5 to 1.0°C every 12 - 24 h or slower. Prophylactic moderate (32 to 33°C) hypothermia is not recommended.

Keywords: RICP, Barbiturates, Hyperventilation, Hypothermia

■What Points Are Important In History Taking in Neonatal Icterus Workup?

Naeeme Taslimi Taleghani [1,2*], Maryam Khoshnood Shariati [2]

1 Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

2 Clinical Research Development Center, Mahdiyeh Educational hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

** Corresponding author:* Neonatal Health Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. E-mail: naeemetaslimi@sbmu.ac.ir

Abstract

Neonatal Jaundice's presentation time and duration are the initial parts of neonatal jaundice history taking. Because some of the exact causes of physiologic Jaundice can also result in pathologic Jaundice, consideration of the time of presentation, rate of rising, and extent of hyperbilirubinemia distinct between physiologic and pathologic Jaundice. Generally, neonatal Jaundice presents on the second or third day of life. Since the presentation of Jaundice within the first 24 hours of life is nonphysiologic, consider evaluating the causes. A lengthy differential diagnosis for Jaundice was first recognized after the first week of life. They include breast milk jaundice, septicemia, congenital atresia, paucity of the bile ducts, hepatitis, galactosemia, hypothyroidism, cystic fibrosis, etc. In infants with severe Jaundice or Jaundice that continues beyond the first 1 - 2 weeks of life, the results of the newborn metabolic screening, family history, infant's weight curve, infant's stool color, and sufficiency

of breastfeeding should be explored. The differential diagnosis for persistent Jaundice during the first month of life include hyperalimentation-associated cholestasis, hepatitis, TORCH, familial nonhemolytic icterus, congenital atresia of the bile ducts, metabolic diseases, and inspissated bile syndrome following hemolytic disease of the newborn. Also, details help to detect severe jaundice reasons included the stool color of the neonate, use of drugs and herbal medicines in the lactating mother, more significant than average weight loss in neonate, symptoms or signs of hypothyroidism, symptoms or signs of metabolic disease, exposure to total parental nutrition, and exclusive breastfeeding. The other part of the history of neonatal Jaundice is about the condition of pregnancy and delivery. Determine the following information is essential: gestational age, maternal age ≥ 25 y, maternal illness suggestive of viral or other infection, maternal drug intake, including the use of herbal remedies, delayed cord clamping, birth trauma with bruising, and fractures/cephalohematoma or significant bruising. For family history, obtain the following information: the presence of Jaundice in the previous sibling, mainly if Jaundice needed treatment, known family history of gilbert syndrome, anemia, splenectomy, or bile stones in family members, known heredity for hemolytic disorders, and liver disease in family members.

Keywords: Neonatal Icterus, Physiologic Jaundice, Hyperbilirubinemia, History Taking

■Appropriate Diagnostic Approach and Clinical Importance of Evaluation of Paediatric Monogenic Diseases

Hassan Abolhassani [1*]

[1] Division of Clinical Immunology, Department of Biosciences and Nutrition, Karolinska Institute, Solna, Sweden

[*] *Corresponding author:* Division of Clinical Immunology, Department of Biosciences and Nutrition, Karolinska Institute, Solna, Sweden.

Abstract

The term ''monogenic disease'' describes a cluster of disorders whose prevalence is so low that they are considered an unviable market for therapeutics in the absence of appropriate incentives and support and too rare to be thoroughly investigated and appropriately managed by professionals. Among this group, there is a subgroup. The rare genetic diseases target precisely one organ or several in affected children. Although the name highlights that these diseases are infrequent, the reality is that more than 6,000 rare diseases collectively affect an estimated approximately 300 million people worldwide. During the past decade and the advance of next-generation sequencing, rare genetic diseases offer a vast landscape for discovering known and novel biological pathways. Several methods are now ready to diagnose a particular syndrome or phenotype, and while old fashion techniques remain efficient tools in specific conditions, higher-throughput technologies have become the definite laboratory tool for diagnosing monogenic disease. Hence, selecting the proper essay or methodologies is challenging, and the wrong choice may lead to prolonged time to diagnosis or even a missed diagnosis. The pediatricians should be aware of current core technologies for diagnosing classic genetic disorders to shed light on the pros and cons of these strategies, including diagnostic efficiency, variant interpretation, and secondary findings.

Keywords: Pediatric, Monogenic Diseases

■Stridor and Seizure Due to Hypocalcemia and Nutritional Vit D Deficiency (A Case Report)

Asieh Mosallanejad [1*]

[1] Shahid Beheshti University of Medical Science, Tehran, Iran

[*] *Corresponding author:* Shahid Beheshti University of Medical Science, Tehran, Iran. Email: mosalladr@ sbmu.ac.ir

Abstract

Background: Severe Hypocalcemia may present with threatening life symptoms as uch as seizure and laryngeal spasm.

Case Presentation: A 4-month-old boy was refered to Emergency Ward due to generalized tonic- clonic seizure. He received diazepam and phenobarbital intravenously. Two hours later, the patient developed stridor. He was born with birth weight of 3.2 kg and was exclusively breastfed. The infant was investigated for seizure: initial laboratory study revealed a serum total calcium 5.7 mg/dL (8.5 - 10.5), that a dose (1 mL/kg) of Ca gluconate was administered intravenously (7 mL calcium gluconate 10% solution) phosphorus: 2.5 mg/dL; alkalin phosphatase: 2500 Iu/L; PTH: 110 pg/mL (15 - 65 pg/mL), and 25-OH vitamin D3: 9 ng/mL. The patient's respiratory symptoms improved and the seizures did not recur. The patient was evaluated for the cause of hypocalcemia: (1) blood; (2) the wrist X-ray showed metaphyseal widening. Further studies showed no malabsorption disorders. Evaluation of 25-OH vitamin D3 level in his mother showed a severe vitamin D deficiency (5 ng/mL). After basal calcium returned to normal, the patient received 300,000 intramuscular vitamin D3 in two divided dosess. The baby was discharged on calcium and vitamin D supplementation and followed regularly. Wrist X –ray performed 6 months later showed no signs of rickets. The child is now 17 months old, motor development is normal. Serum levels of calcium, phosphorus, alkaline phosphatase, and PTH are normal.

Discussion: Symptoms of hypocalcemia in children can range from mild to life-threatening, such as laryngospasm and seizure. One of the causes of hypocalcemia in infancy is rickets due to vitamin D deficiency. Infants ex-

clusively breastfed need to receive 400 units of vitamin D3 daily. The status of vitamin D in infants depends on the level of vitamin D in the mother. Therefore, if the mother is severely deficient in vitamin D and the child does not receive a vitamin D supplement, the symptoms of the deficiency will appear in the first months of life (such as our patient).

Conclusion: Hypocalcemia should be considered in all children presenting life-threatening symptoms such as stridor or seizure.

Keywords: Hypocalcemia, Stridor, Seizure, Infant

■Acute Severe Asthma Exacerbations in Children: PICU Management

Nazanin Farahbakhsh [1*]

[1] Department of Pediatric Pulmonology, Mofid Pediatrics Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Department of Pediatric Pulmonology, Mofid Pediatrics Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Introduction: Asthma is the most frequent cause of hospitalization among children. Children with acute severe asthma who fail to improve with initial treatment in the emergency department should be admitted to the pediatric ICU.

Background: Intensive care unit (ICU) management of children with acute severe asthma entails aggressive pharmacotherapy. The administration of intravenous glucocorticoids and inhaled albuterol is highly recommended, along with the use of inhaled ipratropium and intravenous magnesium sulfate. For patients who fail to respond to these measures, it is suggested to start parenteral beta2-agonists. In select patients, noninvasive positive pressure ventilation (NPPV) may avoid the need for intubation. NIV indicated in a child remains hypoxemic despite high-flow oxygen and/or has documented hypercarbia and/or a child is progressing toward respiratory muscle fatigue, but the maximum therapeutic effects of glucocorticoids and bronchodilators have not been reached. Children admitted to the ICU with severe asthma require close cardiopulmonary monitoring. Most patients are also given intravenous fluids to treat dehydration and prevent hypotension. Interventions should gradually be weaned as the patient improves. More important than the precise order in which medications are discontinued is the careful monitoring of the patient as therapy is withdrawn. Complications can result from the asthma exacerbation itself or the treatments. Patients with an acute severe asthma exacerbation are at risk for progressive air trapping and alveolar hyperinflation, which may lead to alveolar rupture and hemodynamic compromise. Endotracheal intubation with mechanical ventilation in the child with asthma can be associated with significant morbidity including hypotension, barotrauma (including pneumothorax), and myopathy.

Conclusion: Children with acute severe asthma who fail to improve with initial treatment in the emergency department should be admitted to the pediatric ICU. Intensive care level management of these children entails the administration of glucocorticoids, aggressive bronchodilator therapy, and close monitoring.

Keywords: Asthma, Exacerbation, PICU

■Vaccination & COVID-19

Mehrnoush Hassas Yeganeh [1*], Niloufar Shahshaani [1]

[1] Research Center of Children Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Research Center of Children Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: mehrnoushyeganeh@gmail.com

Abstract

Since the beginning of vaccination programs against COVID-19 in different countries, several populations such as patients with specific immunological conditions have been considered priorities for immunization. In this regard, patients with autoimmune diseases or those receiving immunosuppressive agents and anti-cancer therapies need special attention. However, there is no confirmed data regarding COVID-19 vaccines in these populations due to exclusion from the conducted clinical trials. Given the probable suppression or over-activation of the immune system in such patients, reaching a consensus for their vaccination is critical, besides gathering data and conducting trials. It may be that patients with rheumatic diseases are at increased risk of developing COVID or serious COVID-related complications, so the need to prevent COVID-19 is essential in this group of patients. The guidelines recommend a delay in vaccination only in rare circumstances, such as patients with very severe illness or who have recently been administered with some of the biologic DMARDs.

Keywords: COVID-19, Vaccines

■Newborn Individualized Developmental Care and Assessment Program (NIDCAP)

Mohadese Babaie [1], Azam Shirinabadi Farahani [2*], Mohamad Zonuzi Rad [3], Maryam Momeni [4], Fariba Safaei [4]

1 Department of Pediatric and Neonatal Intensive Care Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

2 Department of Pediatric Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

3 Iranian Neuroscience Society, Tehran, Iran

4 Mofid Children's Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Correspondent author:* Department of Pediatric Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Fax: +98-2188202521, Tel: +98-2188655372, Email: farahani1381@yahoo.com

Abstract

The Newborn Individualized Developmental Care and Assessment Program (NIDCAP), based on Synactive theory, has a significant impact on the prognosis of preterm infants. Developmental care is a set of care that, with the outstanding support of each infant, supports his/her behavioral organization to meet the expectations of the preterm infant's central nervous system from a completely different NICU environment and prevent the impact of harmful factors on the developmental process of premature infants. In this program, a special evaluation of each baby is done based on the two main axes of family-centered care and a specific evaluation of each baby's behaviors to identify her abilities and problems. The program focuses on understanding and reading language and recognizing the behavioral cues of premature infants, which are categorized based on the functioning of the motor systems, autonomic nervous system, state, attention and interaction, and self-regulation. The premature infant expresses imbalance and stress or relaxation and self-regulation in any system, with specific behavioral symptoms. Therefore, recognizing and using it by the care team and parents during hospitalization and after discharge, along with reducing and modulating environmental stimuli, helps the safe development of the brain and average growth with minimal damage and disability. Indeed, facilitating the adaptation of the ectopic environment to the intrauterine environment and re-establishing the development process with the family is an essential component of caring for premature or high-risk infants in the NICU. Because the full participation of the family, especially the mother, along with the clinical caregivers, provides the ability to make decisions and care for the hospitalized infant and leads to sensory integration of the infants. Therefore, this type of care modification reduces stress in infants and improves their behavioral and clinical neuropsychological function.

Keywords: NIDCAP, NICU, Preterm Infants

■Investigation of Nursing Malpractice in Child Care in the Forensic Commissions of the Forensic Medicine Organization of Iran

Fars Najari [1*]

1 Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: najari.hospital@sbmu.ac.ir

Abstract

Background: In 2002, out of 98,000 total deaths, 44,000 were due to medical and nursing errors. The eighth leading cause of death in the United States is medical and nursing errors. Due to the importance of the issue in this study, we discussed the nurse's role in the fault of child care.

Method: In a case series study, we conducted some nursing negligence in the forensic commissions of the forensic medicine organization of the country. In these cases, we interpreted the nurses' fault accurately and what the nurse in charge of the patient should do and what she should not have done.

Results: in ten cases, All the nurses were convicted due to omission, commission, disregard for government systems; it was the most common cause of the human error (ignoring parental warnings), and then there was the drug similarity. Venice was the lack of careful care of the child.

Conclusion: Paying attention to the reasonable requests of parents reduces nurses' complaints.

Keywords: Nursing, Parents, Forsenic

■Environmental Influences on Child Development and Behavior

Narjes Jafari [1*]

[1] Pediatric Neurology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Pediatric Neurology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: jafareadr@gmail.com

Abstract

How the environment stimulates early brain development? Newborn brain is composed of 100 million neurons. These organize, migrate, connect, and specialize in response to dopaminergic, adrenergic, and serotonergic neurotransmitter systems. Newborns have 50 trillion synapses connecting these neurons at birth, and an explosion in synaptogenesis leads them to develop 20 times that number by their first birthday. This overproduction is followed by a period of synaptic pruning. Synapses that are used become more substantial, and those neglected are pruned away.

Thus synaptic pruning and myelination are two mechanisms by which an individual neurobiologically adapts to his or her environment. These are also mechanisms by which the environment shapes brain architecture. A child s brain development is susceptible to environmental factors. Parental substance abuse and mental illness, as well as exposure to violence, have been identified as factors that negatively impact children s health and development. Toxic stress early in life plays a critical role in changing the course of development by disrupting brain circuitry and other critical regulatory systems in ways that continue to influence physiology, behavior, and health decades later. Potential resilience factors that can

buffer adversity are as follow: (1) resilience; (2) social competence; (3) problem-solving skills; (4) critical consciousness; (5) autonomy; and (6) sense of meaning or purpose (this is provided through goals, educational aspirations, motivation, persistence, hopefulness, optimism, and spiritual connectedness. A sense of purpose is believed to be a significant predictor of a positive outcome. Children with a strong sense of purpose focus on fulfilling future gratification rather than the immediate gratification provided by risky behaviors

Keywords: Behavior, Child, Development

■Infant Neurodevelopmental Screening

Asie Khaleghi [1*]

[1] Pediatric Neurology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Neurology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

The importance of screening and prevention at different levels and timely interventions from the fetal period should be considered. In recent years, with the advancement of science and equipping human society with diagnostic facilities and tools, the birth of people with multiple disabilities and high-risk anomalies has decreased, which can promise to increase life satisfaction, reduce the financial burden, and prevent Loss of staggering costs for treatment. Health is the enjoyment of complete physical, mental and social well-being and not just the absence of disease and disability, and the goal of the organization is to promote the health of all human children to the highest possible level. Screening is a comprehensive process that begins with inviting a demographic to participate and ends with treating high-risk individuals. American Academy of Pediatrics (2018): All children who do not have a specific risk factor should be screened at least once in the first year of life or after 60 months. The younger the child, the more limited the behaviors are and are not detected by observation alone, and standard screening tools are required. Mean behaviors in the statistical population are used as milestones or growth milestones in the screening test. A screening test can obtain a complete profile of developmental or neonatal development. Developmental: (1) psychological discussion; (2) communicational; (3) movement; (4) emotional; (5) personal and social skills. Standard evolutionary screening tests: (1) Denver, (2) belay, (3) battle, (4) ASQ3. The first tool for preschoolers should not be intelligence tests, and screening tests should be a priority. Different areas of development: (1) cognition; (2) problem-solving; (3) large growth movements; (4) delicate growth movements; (5) communicational; (6) emotional.

Global Development Delay: This label can be used until entering school and is temporary.

Keywords: Developmental Delay, Screening

■Psychology of Infant

Asie Khaleghi [1*]

[1] Pediatric Neurology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Neurology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Babies see, hear, feel, perceive smells and tastes, and respond to various stimuli, including pain. Providing proper and standard care during infancy and from birth provides the opportunity for the optimal growth and development of the baby, which is her natural right. The most crucial time for the formation of personality, establishing proper emotional communication, and maintaining the physical and mental health of the child is infancy, especially at birth, which plays a significant role in all aspects of human health, including mind, body, mind, and safety. The mother's educational role is vital and effective in creating lasting changes in the baby's upbringing. Providing optimal care to the baby will lead to a healthy society, reduce the cost of care and treatment for all ages, and as a result will increase social capital. One of the environmental factors affecting human growth is an attachment that occurs during the first months after birth. Attachment is a deep emotional bond that develops in the parent (child-caregiver). At the end of the first year of life, infants become attached to familiar people who have met their physical needs. Balbi states that during the developmental period, infants who can attract the attention of the loved one and get closer to him are more likely to survive. According to Balbi's research, a motivational control system, which he calls the "behavioral attachment system," is gradually designed by natural selection that helps a person survive. There is a sensitive or critical period for this bond to occur, which may not occur when this period is lost. The most crucial thing in a baby's life is to create a sense of trust and security. Children who do not experience close and trusting relationships with their parents are more likely to suffer from low levels of self-confidence and self-esteem, leading to widespread anxiety and depression in their future lives.

Keywords: Attachment, Child, Health

■Management of Hypoxia in Pediatric Population Affected with COVID-19

Gh R Panahandeh 1*

1 Shahrekord University of Medical Sciences, Shahrekord, Iran

[*] *Corresponding author:* Shahrekord University of Medical Sciences, Shahrekord, Iran.

Abstract

Pediatric acute respiratory distress syndrome (PARDS) is a life-threatening condition characterized by hypoxemia and is the most important cause of respiratory failure .It has been proposed that adult COVID-19 respiratory illness has two phenotypes: a low compliance ARDS- like phenotype and a normal compliance phenotype with low ventilation to perfusion ratio. The normal compliance phenotype is theorized to be due to a loss of hypoxic pulmonary vasoconstriction although the pediatric presentation in critical care has not been reported yet; the adult phenotype could be considered when managing pediatric patients with severe COVID-19. PARDS characterized by hypoxemia, radiographic haziness and decreased lung ,compliance per the criteria purposed by the pediatric acute lung injury consensus conference group (PALICC). High frequency nasal cannula or NIV by CPAP or BIPAP has been used successfully in pediatric patient with COVID-19 hypoxemia but increases risk of aerosolization and air born transmission that obligate strict airborne precautions. Management in ICU aims to maintain oxygenation while minimizing ventilation –induced lung injury (VILI). For mechanical ventilation oxygen supplementation to maintain SPO2 > 92% and OI < 4 or OSI < 5 is recommended. Prone position and HFO ventilation (HFOV) are mostly utilized as rescue oxygenation. Prone position has been used as an adjunct therapy in adult patients with COVID 19 as chest computed tomography shows ground-glass appearance and depended lung injury. Pediatric evidence supp onorting prone position is scarce; however, there have been promising results with improved ventilation in dependent lung regions If HFOV is considered in patients with COVID-19, it should be used cautiously due to the high risk of aerosolization.

Keywords: COVID-19, Pediatric, Respiratory Distress

■Management of Local Anesthetic Agents Allergy

Mahboubeh Mansouri [1*]

[1] Research Institute of Children Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Research Institute of Children Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Idiosyncratic adverse reactions to local anesthetics (LAs) are not uncommon, but most are not allergic. Lidocaine is the most commonly used LAs. LAs are classified into two groups: esters and amides. Cross-reactivity is shared among one group but not usual between the two groups. Non-allergic reactions to LAs include: (1) sympathetic stimulation; (2) psychomotor or anxiety-related reactions; (3) vasovagal syncope; and (4) systemic toxic effects. Allergic reactions to LAs account for about one percent of adverse reactions to LAs and fall into two categories: (1) IgE –mediated; and (2) delayed TYPE cell-mediated reactions. Cell-mediated allergic reactions to LAs appear as eczematous and itchy rashes, sometimes as vesicles or blisters for up to 72 hours at the injection site, or simply as swelling at the injection site without overlying skin, dermatitis. These reactions are not dangerous and can also be caused by topical antibiotics, disinfectants, sutures, latex, sulfite, metabisulfite, and parabens. Is above. IgE -mediated allergic reactions to LAs are infrequent, and symptoms include urticaria, pruritus, bronchospasm, angioedema, laryngeal rhinitis, or anaphylaxis that appears within one hour after LAs injection. Diagnosis is based on history, clinical signs, and the onset of symptoms. A placebo control challenge is mandatory to treat non-allergic manifestations by reassuring the patient, using anti-anxiety drugs if needed and if the allergic reaction is unlikely to be ruled out. Treatment for immediate allergic reactions or anaphylaxis includes the timely use of epinephrine and other related therapies used in immediate allergic reactions. If the skin test and challenge to LAs is adverse, but the anaphylactic reaction is still suspected, then allergies to other substances such as disinfectants such as chlorhexidine, topical antibiotics, and latex should be considered and evaluated.

Keywords: Allergic, Reaction, Injection

■Foreign Body Aspiration in Children

Maryam Hassanzad [1*]

[1] Pediatric Respiratory Diseases Research Center, National Research Institute of Tuberculosis and Lung Diseases (NRITLD), Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Respiratory Diseases Research Center, National Research Institute of Tuberculosis and Lung Diseases (NRITLD), Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Airway foreign bodies are the third most common cause of death due to unintentional injury in children younger than one year. Mortality occurs due to acute aspiration and acute hypoxia. The human body has numerous defense mechanisms to keep the airway free and clear of extraneous matter. The most common entities aspirated are small food items such as nuts, raisins, sunflower seeds, and these should be avoided until the child can adequately chew them while sitting.

History: Often, the child presents after a sudden episode of coughing or choking while eating.

Physical: Major findings include new abnormal airway sounds, such as wheezing, stridor, or decreased breath sounds. The other situation in which patients commonly seek medical attention is usually the third clinical phase. In many such instances, a foreign body is not suspected, and the foreign body remains untreated.

Radiography: Most aspirated foreign bodies are food materials and are radiolucent. Thus, one has to look in-

directly for signs of the foreign body. A plain radiograph can reveal an area of focus over inflation or an area of atelectasis, depending on the degree of obstruction.

CT Scanning: The use of CT scanning in managing a child with a foreign body in the airway has recently been questioned.

Bronchoscopy: Even if no foreign body is evident on any radiographic studies, a foreign body may still be present, and bronchoscopy should be performed if the suspicion is high. Heimlich maneuver: (1) the child has respiratory distress and cannot speak or cry; (2) complete airway obstruction is probable; (3) the likelihood of morbidity or mortality is high. In those cases, a Heimlich maneuver may be performed.

Complications: Complications arising from foreign body aspiration depend on location, type of foreign body aspirated (organic vs. non-organic, sharp vs. dull), and time the foreign body remained in the airways. Potential complications include bronchial stenosis, bronchiectasis, lung abscess, tissue erosion/perforation, and pneumo-mediastinum or pneumothorax.

Keywords: foreign body, children, aspiration

■Pediatric Rehabilitation; an Overview of Principles and Differences

Marzieh Babaee [1*], Ghazal Zahed [2], Seyed Mansoor Rayegan [1], Seyed Ahmad Raeissadat [1]

1 Physical Medicine and Rehabilitation and Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

2 Research Institute of Children Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Physical Medicine and Rehabilitation and Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: Marzieh Babaee rambabaee@yahoo.com

Abstract

According to the World Health Organization, more than 650 million people worldwide live with disabling conditions, of which 200 million are children. The international classification of functioning, disability, and health, known as the ICF, classifications health-related areas. Its components mainly focused on body function and structure and environmental factors. Motor and speech function significantly impact early childhood development, and rehabilitation plays an essential role in these domains. The main rehabilitation goals are: developmental phases, a family-centered approach, and playing. In the field of physical medicine and rehabilitation, the main differences between children and adults are: (1) epidemiology of the causes; (2) impairments and disabilities in children; (3) dependency to adults; (4) development; (5) difficulty in predicting prognosis; (6) environment and social network changes in childhood; (7) children are learners; (8) observation VS self-assessment questionnaires. Most pediatric group disorders that require rehabilitation interventions are neurologic and neurosurgery (CP, neuromuscular, TBI, spinal dysraphism, hypoxia), orthopedic (limb deficit), and oncology (cancer rehabilitation and palliative care). Rehabilitation components include Medication, Interventions such as injection, pomp, etc., exercise, shoes, orthosis, prosthesis, environmental change, assistive device, occupational therapy, physiotherapy, or speech therapy. Rehabilitation psychologists and neuropsychologists help patients, and their families understand and cope with physical, cognitive, behavioral, and emotional problems, improve functioning, and reduce the negative impact of injury or illness on their quality of life. They coordinate treatments with physicians and rehabilitation therapists, as well as other specialists, as a team. We mentioned medical care for children with disabilities in the primary care office, mainly respiratory complications, Seizures, Spasticity, pain, sexual health, and fracture, and the differences in routine health care in these children.

Keywords: Children, Rehabilitation, Care

■Bilirubin Induced Encephalopathy

Minoo Fallahi [1*]

1 Neonatal Health Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Corresponding author: Neonatal Health Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: minoofallahi@yahoo.com

Abstract

Hyperbilirubinemia is one of the most common neonatal disorders. Delayed diagnosis and treatment of the pathologic and progressive indirect hyperbilirubinemia lead to neurological deficits, defined as bilirubin induced encephalopathy (BIE). Regarding the use of RHOGAM in Rh-negative mothers, ABO incompatibility is the most important cause of neonatal jaundice these days. Despite modern facilities for treating neonatal hyperbilirubinemia, continuing BIE is concerning. The incidence range of kernicterus in developed countries is reported 1 in 40000 live births. All neonates with the risk factors for an increased blood level of indirect bilirubin are at risk for BIE, especially preterm neonates, which are prone to low bilirubin kernicterus. The incidence of this disorder in underdeveloped countries is much more than in developed areas. BIE's primary underlying pathophysiologic process is the deposition of unconjugated bilirubin in the brain cells. The main problems in this disorder include central nervous system insult, auditory, visual, dental, neuromotor, and language impairments. BIE can be transient and acute with early, intermediate and advanced phases or be permanent, chronic, and lifelong (with tetrad of symptoms including visual (upward gaze palsy), auditory (sensory neural hearing loss), dental dysplasia abnormalities, and extrapyramidal disturbances

(choreoathetosis cerebral palsy). Besides the abnormal neurologic manifestations of jaundiced neonates, brain MRI is the best imaging modality to confirm the diagnosis. Globus pallidus, basal ganglia, substantia nigra, hippocampus, thalamic nuclei, putamen nuclei, dentate, inferior olives, and cerebellum are the most vulnerable areas of the brain to the toxicity induced by bilirubin with an asymmetric pattern of involvement in the mentioned areas. The auditory brainstem center is the first and the most dramatic structure in the patient by BIE. BIND (Bilirubin induced neurological dysfunction) score

Keywords: Neonate, Bilirubin, Icter

■Neurodevelopmental Delay in Premature Infants

Mohadese Babaie [1]*, Narjes Jafari, Mohamad Zonuzi Rad, Reihane Askary Kachoosangy

[1] Department of Pediatrics and Neonatal Intensive Care Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Department of Pediatrics and Neonatal Intensive Care Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Prematurity is the most critical risk factor and the most significant cause of brain injuries in infants, which exposes them to various sensory-neuromotor disorders such as cerebral palsy, mental retardation, progressive hydrocephalus, and chronic seizures. The synergy of problems in the body systems of premature infants increases the probability of serious complications. Three practical steps in preventing these complications are reducing the possibility of premature birth, performing supportive developmental care during hospitalization, and planned follow-up of growth and development after discharge. Today, although with the advancement of care and technology in the neonatal intensive care unit, there is a reduction in mortality, attention to the adverse effects of these care and advanced care devices has been neglected. Hospitalized infants are subject to repeated, unavoidable stimuli that can lead to maldevelopment. These patients suffer from visual, auditory, and vestibular problems in childhood, which have consequences such as reduced learning, impaired or delayed cognitive processes, inability to communicate skills and language development, and emotional and behavioral abnormalities. In the following years, they struggle with some problems such as dysfunction in school and during puberty and adulthood with physical-psychological and social disorders. Therefore, to estimate the optimal care and maintenance of the nervous and physical system, there is a need for a participatory care program and timely intervention of an expert care team consisting of neonatologists and pediatricians, nurses, occupational therapists, physiotherapy, and nutrition, to pave the way for the development of the nervous system and the successful and efficient growth of the infants' brain. The favorable climate of teamwork and changing caregivers' attitudes towards the presence of parents and their involvement could be a benefit for infants.

Keywords: Infant, Prematurity

■Neonatal Diabetes Mellitus: Diagnosis and Management

Asieh Mosallanejad [1]*, Mitra Radfar [1]

[1] Imam Hossein Medical Center, Shahid Beheshti University of Medical Science, Tehran, Iran

* *Corresponding author:* Imam Hossein Medical Center, Shahid Beheshti University of Medical Science, Tehran, Iran. Email: mosalladr@ sbmu.ac.ir

Abstract

Introduction: Neonatal diabetes mellitus (NDM) is one of the causes of hyperglycemia in the six first month of birth that occurs in approximately 1 in 90000 – 160000 live births. NDM is most often due to a monogenic defect caused by a single mutation of some specific genes. There are about 23 known gene mutations that cause NDM. It is crucial to diagnose neonatal diabetes mellitus and its etiology as soon as possible to predict clinical course and appropriate management.

Materials and Methods: Genetic testing should be performed on all patients who present with acute hyperglycemia without an identified cause within the first six months of life.

Results: KCNJ11/ABCC8 and INS genes mutation account for more than 75% of all cases of NMD in non-consanguineous parents, but the most common genetic cause in the consanguineous families is a homozygous mutation in the EIF2AK3 gene. EIF2AK3 mutation causes Wolcott-Rallison syndrome.

Discussion and Conclusion: NDM is a heterogeneous genetic disorder. Clinical manifestations include intrauterine growth retardation, polyuria, lethargy, and abnormal respiration. Dehydration and electrolyte imbalance due to ketoacidosis may be found too. Neonatal diabetes mellitus may be transient or permanent. About 20% of patients with NDM have the transient disease and will resolve in infancy. The frequency of DKA is dependent on the specific gene mutation. Up to 75% of patients with KCNJ11 and ABCC8 mutation can present with DKA, while ketoacidosis occurs in 30% of patients with INS mutation. Most patients with KCNJ11 mutation have permanent diabetes mellitus, but mutation in ABCC8 is associated with transient NDM. Patients with KCNJ11 mutation may exhibit developmental delay and seizure (DEND syndrome). Most patients with KCNJ11 mutation are sulfonylurea responsive, and about 90% of them can be treated with high oral doses of sulfonylureas (up to 2.5 mg/kg per day of glyburide). In addition, because K-ATP channels are expressed in the brain, sulfonylurea drugs can improve

neurocognitive development. In conclusion, genetic testing should be sent as soon as possible to confirm the diagnosis and evaluate the response to sulfonylurea treatment.
Keywords: Diabetes Mellitus, Patients, Neonatal

■Epidermal Necrolysis and Drug Reaction with Eosinophilia and Systemic Symptoms Syndrome

Narges Eslami [1*]

[1] Department of Allergy and Clinical Immunology, Mofid Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Department of Allergy and Clinical Immunology, Mofid Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: drnarges@yahoo.com

Abstract

Management of Stevens-Johnson Syndrome/Toxic: Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are potentially fatal adverse cutaneous reactions commonly mediated by drugs. SJS/TEN is characterized by an extensive vesiculobullous rash with epidermal detachment and mucosal involvement. Early recognition, immediate cessation of any potentially causative agent, and transfer to an appropriate specialized unit improve clinical outcomes. Supportive care is the cornerstone of treatment, which includes maintaining the patient's airway, breathing, and circulation, careful fluid, electrolyte resuscitation, temperature regulation, pain control, nutritional support, wound care, and management of superinfections. Systemic immunomodulatory therapies may be considered; however, their utility is controversial. Systemic immunomodulatory therapies comprised corticosteroids, intravenous immunoglobulin, cyclosporine, and tumor necrosis factor-alpha inhibitors. Specialist consultation is needed for more advanced care. Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome is a rare severe T cell-mediated hypersensitivity reaction distinguished by an extensive cutaneous eruption, fever, lymphadenopathy, hematologic abnormalities, systemic organ involvement. The latency between drug introduction and onset of symptoms is usually prolonged, typically between two to eight weeks. While most patients with DRESS syndrome can completely recover, a subset of patients experiences a prolonged course with recurrence and autoimmune complications, despite drug withdrawal. Mainstays of treatment are discontinuation of the offending drug, supportive care, management of concomitant comorbidities, and initiation of topical and systemic immunomodulatory therapy. Supportive care includes maintaining fluid and electrolyte balance, nutritional support, symptom control, and skincare with emollients and warm baths/wet dressings. In milder forms of the disease, supportive and topical corticosteroids alone may be sufficient. Systemic corticosteroid treatment was reserved for patients with severe disease who had evidence of at least one life-threatening visceral involvement. Other potential treatments include intravenous immunoglobulin (IVIG), plasmapheresis, and cytotoxic agents such as cyclosporin. Long-term monitoring for organ involvement and timely consultation with specialists is essential.
Keywords: Drug, Reaction, Dress Syndrome

■Opioid Poisoning in Children, Do's and Don'ts

Narges Gholami [1*]

[1] Shahid Beheshti University of Medical Sciences, Loghman Hakim Hospital, Tehran, Iran

[*] *Corresponding author:* Shahid Beheshti University of Medical Sciences, Loghman Hakim Hospital, Tehran, Iran. Email: nargesgholami724@yahoo.com

Abstract

The opioid is one of the most crucial illicit drug classes in toxicology. Children and adolescents growing up in opioid misuse families are at risk of unintentional opioid overdose and developing a substance use disorder. Unfortunately, opioid poisoning among children has been increasing recently in Iran, and it is a public health problem in Iran. Central nervous system (CNS) depression, respiratory depression, and miosis are the most common clinical presentation in opioid poisoning.

Physicians and health care workers should be aware of an opioid toxidrome and proficient in the appropriate treatment of children with opioid poisoning. These surveys aim to reduce the mortality and morbidity of opioid overdose by improving the in-time and proper management of opioid poisoning in children. Naloxone can be highly effective in reversing an opioid overdose symptom also can be a lifesaver if administrated in time. If naloxone is available, it can inject in various rout including intramuscular (IM), intravenous (IV), intranasal (IN), subcutaneous (SC), and endotracheal (ET). (0.01 - 0.1 mg/kg max: 2 mg in each dose; total dose 10 mg). Due to the half-life of naloxone being substantially shorter than that of opioids, it is strongly recommended that the patient be transferred to a hospital in standard-issue by ambulance and naloxone drip and do attend to the person's airway, breathing, and cardiovascular support, keep him/her warm and do not try to make her/him vomit drugs.
Keyword: Children, Opioid, Naloxone

■Efficacy of Myrtle (Myrtus communis L.) Berry Syrup in Children with Gastroesophageal Reflux Disease

Maryam Sadat Paknejad [1*], Kambiz Eftekhari, Roja Rahimi, Mehrdad Karimi

[1]Tehran University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Tehran University of Medical Sciences, Tehran, Iran. Email: neurointmed@gmail.com

Abstract

Background: Gastroesophageal reflux disease (GERD) is a prevalent disease with significant morbidity. Currently, proton pump inhibitors (PPIs) are the most accepted treatment for GERD. Nevertheless, some adverse effects significantly rebound acid hypersecretion after drug withdrawal forces physicians to caution on starting and continuing a PPI. Our study aimed to evaluate the efficacy and safety of herbal preparation, Myrtus communis L. fruit syrup, on GERD in children.

Methods: This study was designed as a double-blinded randomized clinical trial. Children aged 1 - 7 years old, diagnosed with GERD, were allocated to either intervention group (omeprazole and "myrtle fruit syrup") or control group (omeprazole and placebo syrup). Each patient filled out the GERD Symptom Questionnaire for Young Children (GSQ-YC). The treatment period was eight weeks, and GSQ-YC was filled out at the end of the eighth week and four weeks after the intervention's cessation.

Results: No statistically significant difference between the two groups in terms of GERD score was reported neither in 8th nor 12th-week assessments. During the four weeks of the drug-free period, patients in the myrtle group did not experience a significant shift in GERD score, while patients in the placebo syrup group experienced an increase of as much as 19.4. However, this difference was not statistically significant, though it could be significant clinically. After eight weeks, the symptom "refusal to eat" in the intervention group was less than in the placebo group (P = 0.018). This difference was still statistically significant at the end of the study (P = 0.042).

Conclusion: Although our study could not show a clear complementary or alternative role for myrtle fruit syrup in GERD treatment, more researches with bigger sample sizes, preferably independent of PPIs, can help evaluate this herbal treatment for GERD more confidently. Myrtle fruit syrup can be considered for children with a low appetite.

Keywords: Children, Syrup, Gastroesophageal, Reflux

■Hematopoietic Stem Cell (HSC) Harvesting in Children

Paravane Mobed [1], Bibi Shahin Shamsian [2*]

1 Hematopoietic Stem cell Transplantation Ward, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

2 Pediatric Congenital Hematologic Disorders Research Center, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Bibi Pediatric Congenital Hematologic Disorders Research Center, Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: shahinshamsian@gmail.com

Abstract

BM harvesting is done under general anesthesia in the operating room. The other method is PBSCs harvesting. Some of the problems in children for Collecting of HSCs include small body weight and the difficulties in accessing venous access in peripheral blood stem cell harvesting. The use of cytokine mobilized peripheral blood stem cells (PBSC) for stem cell transplantation offers early engraftment for myeloid and platelet engraftment and less early transplant-related mortality and morbidity. Peripheral blood stimulating factors (G-CSF) for four days is used, and the harvest is done on the fifth day with a peripheral stem cell apheresis unit. Two crucial factors in the success of peripheral stem cell harvest are donor compliance and suitable vascular access. These become very difficult if the stem cell donor is a child as they are unlikely to cooperate for such invasive procedures. In such instances, vascular access placement and peripheral stem cell harvest must be done under anesthesia. Metabolic complications like hypocalcemia, hypoglycemia, etc., due to citrate toxicity and volume shifts due to extracorporeal volume can occur and hence is often challenging. HSCs harvesting from children is a challenge because children have different physiological and anatomical situations and psychological, legal, and ethical concerns. The primary resources to harvest HSCs are bone marrow (BM) and peripheral blood stem cells (PBSCs). The iliac crest is performed in general anesthesia by experienced physicians.So to perform stem cell harvesting in children, physicians and nursing must have working knowledge about the normal age-dependent physiological parameters, like vital signs psychological characteristics, and should be trained in communication with children and parents.

Keywords: Stem cell Harvesting, Children, Peripheral Blood

■Effects of Drug Abuses in Pregnancy on Mother and Her Fetus & Newborn

Parviz Ghadamli [1*]

1 Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: pournasiri.z@gmail.com

Abstract

WHO states 5 - 10% of pregnant mothers use illicit drugs; Marijuana and Cocaine are the most frequently abused illicit drugs in pregnancy. Although opioid abuse in pregnancy is less common, its effect on the mother and her fetus can be life-threatening. Opioids cross the blood-brain barrier, placenta but methadone is more absorbed orally, and its half-life is one day.

Drug Use in Pregnancy:

Maternal Effects: Infection, Malnutrition, preeclampsia, depression and other psychiatric disorders, cardiac events, STDs, hypertension, tachycardia, urinal tracts in-

fection.

During Pregnancy: Poor fetal growth, Premature rupture of membranes, premature birth, stillbirth, placenta previa, spontaneous abortion, preterm labor, third trimester bleeding.

Fetal Effects: IUFD, LBW, ARDS, fetal death, prematurity.

Newborn Effects: Withdrawal symptoms, hypoglycemia, intracranial Hemorrhage, sudden infant death.

Keywords: Pregnancy, Drug Abuse

■Proteinuria and Nephrotic Syndrome in Children

Zahra Pournasiri [1*]

[1] Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: pghadamli@yahoo.com

Abstract

Nephrotic syndrome, characterized by edema, heavy proteinuria (> 1 g/m2 daily; > 40 mg/m2/h) and hypoalbuminemia (serum albumin < 3 g/dL). The condition has an annual incidence ranging from 1.2 to 16.9 per 100,000 children. While the nephrotic syndrome is usually primary or idiopathic, evaluation might reveal an underlying systemic illness in 5 - 10% of patients. Therapy with prednisolone results in complete remission of proteinuria in 85 - 90% of patients, termed steroid-sensitive nephrotic syndrome (SSNS), and approximately 50% show frequent relapses or steroid dependence, and 3 - 10% show late steroid resistance.

Definitions of Disease Course and Severity in Nephrotic Syndrome: Frequent relapses two or more relapses in the first 6-months after stopping initial therapy; > 3 relapses in any 6-months; or > 4 relapses in one year. Steroid dependence two consecutive relapses when on alternate day steroids, or within 14 days of its discontinuation Steroid resistance: Lack of complete remission despite therapy with daily prednisolone at a dose of 2 mg/kg (or 60 mg/m2) daily for six weeks.

Complicated Relapse: Relapse associated with life-**threatening complications:** (1) hypovolemia requiring inpatient care; (2) severe infection (peritonitis, cellulitis, meningitis); or (3) thrombosis. Significant steroid toxicity Hyperglycemia (fasting glucose > 100 mg/dL, postprandial glucose > 140 mg/dL, or HbA1c > 5.7%); obesity (body mass index >equivalent of 27 kg/m2; short stature (height < -2 SDS for age) with height velocity (< -3 SDS for age); raised intraocular pressure; cataract (s); myopathy; osteonecrosis; or psychosis. Difficult-to-treat steroid both of the following: (1) frequent relapses, or significant steroid toxicity with infrequent relapses; and (2) failure. A sensitive disease of ≥ 2 steroid-sparing agents (including levamisole, cyclophosphamide, MMF). Investigations: (1) essential at onset; (2) urinalysisaCBC; (3) blood urea, creatinine, electrolytes, total protein, albumin, total cholesterol; (4) tuberculin test; (5) additional evaluation; (6) CXR: positive PPD or history of contact; (7) renal ultrasonography: planned for kidney biopsy; gross hematuria; suspected renal vein thrombosis; (8) complement C3, C4, antinuclear antibody, antistreptolysin O: Gross, persistent microscopic hematuria; sustained hypertension; suspected secondary cause transaminases; HBS antigen, HCV Ab.

Keywords: Nephrotic Syndrome, Proteinutia

■History of Vaccination

Mohamad Hosein Soltanzadeh [1*]

1 Shahid Beheshti University, Tehran, Iran

[*] *Corresponding author:* Shahid Beheshti University, Tehran, Iran.

Abstract

Vaccination: Administration of microorganism or virus in a weakened, live or killed state, or proteins or toxins from the organism to help the immune system develop protection from disease; vaccination is by far the ultimate achievement of humankind. Vaccination is derived from the Latin word "Vacca," meaning cow, due to early studies of viruses and immunization on cows. Immunity due to vaccination is mainly responsible for the worldwide eradication of smallpox and eliminating diseases such as polio and tetanus from much of the world. When smallpox was finally eradicated in 1979, it had already killed an estimated 300 - 500 million people in the 20th century. COVID-19 pandemic has shed light on the significance of vaccination were all known human scientific establishment has been mobilized to develop a vaccine for it. This presentation discusses several necessary vaccines for viruses and diseases, including hepatitis, pneumococcal, meningococcal, rotavirus, human papilloma virus in children and pregnant mothers. Challenges in achieving herd immunity and many of the programs and initiatives to conduct mass immunization are discussed.

Keywords: Children, Vaccination

■A Boy with Ischemic Stroke due to Antiphospholipid Antibodies (APA)

Sasan Saket [1,2*]

[1]Pediatric Neurology Research Center, Mofid Children's, Shahid Beheshti University of Medical Sciences and Health Services, Tehran, Iran

[2] Pediatric Neurology Research Center, Shohada-e-Tajrish Hospital, Shahid Beheshti University of Medical Sciences and Health Services, Tehran, Iran

[*] *Corresponding author:* Pediatric Neurology Research Center, Mofid Children's, Shahid Beheshti University of Medical Sciences and Health Services, Tehran, Iran.

Abstract

The annual incidence of stroke in children after the new-

born is approximately 2.3 per 100,000. Ischemic strokes are more common than hemorrhagic, and strokes of all types are slightly more common in boys. The most common risk factors for pediatric stroke include congenital heart disease, meningitis/encephalitis, sepsis, and sickle cell disease. Only 30% of ischemic and hemorrhagic strokes in children are associated with a known risk factor. Thrombolytic therapy with intravenous (IV) tissue plasminogen activator (tPA) has been the central intervention for the management of pediatric stroke patients. We present a case of a 14-year-old boy with a history of weakness, lethargy, and right-sided hemiparesis with the final diagnosis of acute ischemic stroke due to antiphospholipid antibodies that are a rare condition among young boys. He received intravenous tPA and Aspirin, enoxaparin, and IV folinic acid. He discharges with warfarin and folinic acid and neurorehabilitation. We follow-up him for more than four years.

Keywords: Pediatric, Stroke, Tissue Plasminogen Activator, APA

■The Future of Pediatric Rheumatology

Farhad Salehzadeh [1*]

[1] Ardebil University of Medical Sciences, Ardebil, Iran

* Corresponding author: Ardebil University of Medical Sciences, Ardebil, Iran.

Abstract

A clear connection was established during the 'auto-inflammatory (AID) era between autoinflammatory disease and the innate immune system. The concept of autoinflammation arose from the recognition of monogenic disorders with seemingly provoked inflammation without the high-titer autoantibodies or antigen-specific T cells seen in classic autoimmune diseases. Although the 'inflammasomopathies,' which are associated with marked interleukin (IL)-1β production, were some of the earliest recognized autoinflammatory diseases, it soon became apparent that autoinflammation can be caused by a variety of genetic lesions affecting a range of innate immune pathways, including nuclear factor kappa B (NF-κB) activation and type I interferon production.

The advent of next-generation sequencing has resulted in discovering multiple new diseases, genes, and pathways, while genome-wide association studies (GWAS) have shed light on the pathogenesis of genetically complex autoimmune, autoinflammatory diseases, such as Behçet disease. In the future, AID will continue to expand, but, likely, distinctions between autoinflammatory and autoimmune disorders will not be apparent until more understanding and insight into these new evolving human illnesses.

Keywords: Pediatric, Autoinflammation

■Pulmonary Air Leak in the Newborn

Shahrzad Tabatabaee [1*]

[1] Imam Hossein Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Imam Hossein Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Pulmonary air leak happens more frequently in the neonatal period than at any other life time. The following problems depend on the location of the air.

The common disorders are pneumomediastinum, and pneumopericardium. Common etiology is the overdistension of alveoli and terminal air spaces that rupture and air leaks. The clinical appearance of mild form pneumothorax is usually asymptomatic. As it progresses, oxygen need or ventilator requirement increases. When tension pneumothorax occurs, there will be acute cyanosis, hypotension, and decreased peripheral perfusion. Medical management of pneumothorax depends on its severity. When patients are asymptomatic, they should be closely observed. Chest tube insertion is usually necessary for other forms of pneumothorax. PIE is a condition where air leaks into the pulmonary interstitium. The clinical manifestation is usually impairment of gas exchange with hypercarbia and hypoxia or an increased setting necessary for ventilator support. If the patient is not critical, PIE is usually managed conservatively with gentle ventilation. Pneumomediastinum is an escape of air into the mediastinal space. The diagnosis is made on a chest radiograph. If it is an isolated problem, most cases are asymptomatic and may resolve spontaneously. The patient should be closely observed. If the amount of air leak in the mediastinal space is serious enough to induce tamponade can be fatal without adequate decompression. Pneumopericardium is a rare cond,ition caused by air in the pericardial space and typically occurs in a mechanically ventilated preterm infant with pneumothorax or PIE. In severe conditions, it can cause cardiac tamponade. In life-threatening cases, the diagnosis can be confirmed by a therapeutic pericardiocentesis.

Keywords: Newborn, Pneumothorax, Radiography

■Tumor Lysis Syndrome

Shiva Nazari [1*]

[1] Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresphsonding author:* Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Children's Health Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: shnazari2000@gmail.com

Abstract

Tumor lysis syndrome (TLS) is a hemato-oncologic emergency characterized by a group of metabolic abnormalities that can occur as a complication during cancer treatment. It is characterized by hyperkalemia,

hyperphosphatemia, hypocalcemia, hyperuricemia, and higher than normal BUN and creatinine levels. These changes in blood electrolytes and metabolites result from the release of cellular contents of dying cells into the bloodstream from the breakdown of cells. TLS, the breakdown occurs after cytotoxic therapy or from cancers with high cell turnover and tumor proliferation rates such as lymphomas and leukemias. Usually, TLS is induced by cytotoxic therapy and appears in the first 48 - 72 h after its initiation, with first laboratory signs usually observed already 6 - 24 h after its initiation. TLS may have only laboratory form, or the metabolic disturbances may overwhelm the patient's homeostatic capacity, leading to severe clinical consequences such as acute kidney injury (AKI), cardiac arrhythmia, hypotension, and/or neurologic complications, called then clinical TLS. Risk factors for tumor lysis syndrome depend on several different characteristics of the patient, the type of cancer, and the type of chemotherapy used: Tumors with a high cell turnover rate, rapid growth rate, and high tumor bulk tend to be more associated with the development of tumor lysis syndrome. The most common tumors associated with this syndrome include Burkitt's lymphoma, acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML). Certain patient-related factors include elevated baseline serum creatinine, kidney failure, dehydration, and other issues affecting urinary flow or the acidity of urine.

Keywords: Oncology, Tumor Lysis Syndrome

■Challenges of COVID-19 in Rheumatic Autoimmune Diseases (RADs) Patients

Khosro Rahmani 1*

1 Mofid children's hospital, Faculty of Medicine, Shahid Beheshti University of Medical Science, Tehran, Iran

* *Corresponding author:* Mofid children's hospital, Faculty of Medicine, Shahid Beheshti University of Medical Science, Tehran, Iran. Email: rahmani.kh88@gmail.com

Abstract

Upon COVID-19 infection, age-specific mortality rates in RADs patients notably began from 35 years old, while in the uninfected population, it was from 55. COVID-19 associated rheumatic signs and symptoms are myalgia, fatigue, Kawasaki-like signs, and skin rashes mimicking vasculitides and pernio (chilblains) like lesions. So a variety of rheumatic diseases may mimic or be mimicked by COVID-19.

Rheumatologic Treatments During COVID-19 Epidemic: Prednisone caused an increased hospitalization rate, significantly when the dose exceeded 10 mg per day. It is reasonable to reduce glucocorticoids gradually to 5 - 7.5 mg/day, but discontinuation during the pandemic is not recommended. Conventional synthetic disease-modifying anti-rheumatic drugs (csDMARDs) reduce the risk of COVID-19 infection and the cytokine storm emerging in severe cases. Colchicine has reduced the mortality of COVID-19 patients and the number of severe cases. Tapering or even discontinuing csDMARDs is suggested to recover immunity in severe cases, which may help rapidly eliminate the virus. Hydroxychloroquine is likely to increase survival in SLE patients, and it is not advisable to be discarded. Biologic or targeted synthetic disease-modifying anti-rheumatic drugs (b/tsDMARDs) may help reduce inflammatory cytokine storm under COVID-19 attack. Compared with RADs patients treated with CD20 monoclonal antibody "rituximab" or IL-17A antagonist "secukinumab," patients receiving tumor necrosis factor (TNF) inhibitors "etanercept" and "alemtuzumab" or IL- 6 receptor antagonist "tocilizumab" may experience milder course.

Applicable Laboratory Indicators: Elevation of ESR, CRP, ferritin, interleukin 6, and creatine kinase can be seen in COVID-19 and various rheumatic diseases. RADs related autoantibodies may present among non-RAD severe COVID-19 cases.

COVID-19 as a Risk Factor for Rheumatologic Diseases: Cases of Small vessel cardiac vasculitis/endothelium, immunoglobulin A (IgA) vasculitis in patients with Crohn disease, cutaneous vasculitis-like lesions, systemic arterial and venous thromboembolism including cryptogenic strokes and other vasculopathy features, systemic rheumatic diseases such as SLE, inflammatory arthritis, GCA, inflammatory myopathies, APS, Sjögren's syndrome, ANCA-associated vasculitides, seropositive rheumatoid arthritis, and Virus-associated or reactive arthritis and Crystal-related arthritis due to gout or calcium pyrophosphate disease has been reported. COVID-19, in the acute phase, may cause cytokine storm and severe inflammatory response; and in the chronic phase, patients become susceptible to autoinflammatory and autoimmune diseases. If a patient has signs and symptoms of rheumatic diseases after developing COVID-19, do not attribute these complaints entirely to COVID-19; consider starting a real dangerous rheumatic disorder.

Keywords: COVID-19, Treatment, Laboratory

■Approach to Common Pediatric Upper Respiratory Tract Infections

Kourosh Soltanieh Zanjani [1*]

1 Research Institute of Children Health, Shahid Beheshti University of medical science, Tehran, Iran

* *Corresponding author:* Research Institute of Children Health, Shahid Beheshti University of medical science, Tehran, Iran.

Abstract

Upper respiratory tract infection (URI) is one of the most frequent diseases observed at centers for pediatric care and results in significant morbidity worldwide. URI is the most common cause in children treated against acute respiratory infection. The difficulty found by clinicians in establishing the differential and etiologic diagnosis

of URIs and the occasionally indiscriminate use of antimicrobial drugs. URIs range from the common, cold-typically a mild, self-limited, catarrhal syndrome of the nasopharynx to life-threatening illnesses such as epiglottitis. Viruses account for most URIs. Appropriate management in these cases may consist of reassurance, education, and instructions for symptomatic home treatment. Diagnostic tests for specific agents are helpful when targeted URI therapy depends on the results. Bacterial primary infection or superinfection may require targeted therapy. The upper respiratory tract includes the sinuses, nasal passages, pharynx, and larynx, gateways to the trachea, bronchi, and pulmonary alveolar spaces. Rhinitis, pharyngitis, sinusitis, epiglottitis, laryngitis, and tracheitis are specific manifestations of URIs. Most URIs are viral in origin. Typical viral agents that cause URIs include the Rhinoviruses, Coronaviruses, Adenoviruses, and Coxsackieviruses. In the emergency department, attention should be paid to the patient's vital signs, including temperature, heart rate, respiratory rate, blood pressure, and oxygen saturation (if obtained). Neonates are obligate nose breathers and may be at greater risk for respiratory distress; hence practitioners should auscultate the lungs for adequate aeration and assess breathing quality. The cardiovascular examination should assess adequate distal perfusion and an appropriate-for-age heart rate. Finally, dehydration can be a complication of any viral illness, and therefore, an assessment of hydration should be a part of the initial evaluation. Tests of nasopharyngeal specimens for specific pathogens are helpful when targeted therapy depends on the results (e.g., group A streptococcal infection, gonococcus, pertussis). Specific bacterial or viral testing is also warranted in other selected situations, such as when patients are immunocompromised, during inevitable outbreaks, or provide specific therapy to contacts. Symptom-based therapy represents the mainstay of URI treatment in immunocompetent adults. Antimicrobial or antiviral therapy is appropriate in selected patients.

Keywords: Infection, Upper Respiratory

■Drugs in Neonatal Resuscitation Program (NRP) and Changes from the Last Version

Sedigheh Tahereh Tehranchi 1*

1 Research Institute of Children Health, Shahid Beheshti University of Medical Science, Tehran, Iran

* *Corresponding author:* Research Institute of Children Health, Shahid Beheshti University of Medical Science, Tehran, Iran.

Abstract

NRP guidelines have been used worldwide for neonatal resuscitation since 1987, and it has become the training standard for healthcare professionals worldwide who manage newborns in the hospital setting. It is a practical step-by-step guideline published by the International Liaison Committee on Resuscitation (LCOR), which AAP&AHA developed. Although the main principles of resuscitation are the same as 30 years ago, some details are different in the last edition (8th edition). Similar to the 7th edition, the textbook emphasizes the importance of adequate preparation, effective ventilation, and teamwork. If we concentrate on the drug section of NRP, we will notice three differences in the last edition. The first one is increasing the flush volume for intravascular epinephrine (intravenous or iv/intraosseous or io), which has been 0.5 to 1 mL of normal saline, and the new suggestion s flushing iv/io epinephrine with 3 mL normal saline (applicable to all weights and gestational ages). The second one is Epinephrine dosage (iv/io/endotracheal) that has been simplified for educational efficiency.it was 0.01 - 0.03 mg/kg equal to 0.1 - 0.3 mL/kg for 1/10000 epinephrine for iv/io and 0.05 - 0.1 m/kg equal to 0.5 - 1 mL/kg for endotracheal administration. The new suggestion is 0.02 mg/kg (0.2 mL/kg) and 0.1 mg/kg (1 mL/kg) respectively. The third difference is average saline volume when needing a volume expander that was ten cc/kg in the 7th edition and turned to the suggestion of 20 cc/kg in the 8th edition. Duration of administration remained equally 5 to 10 minutes in both editions.

Keywords: Neonatal, Drug

■Approach to the Child with Loss of Consciousness

Toktam Moosavian 1*

1 Research Institute of Children Health, Shahid Beheshti University of Medical Science, Tehran, Iran

* *Corresponding author:* Research Institute of Children Health, Shahid Beheshti University of Medical Science, Tehran, Iran.

Abstract

Losses of consciousness (Traumatic and non-traumatic causes) have roughly equal annual incidences of approximately 30 per 100,000 children. Three leading causes can diminish awareness: dysfunction in the brainstem, bilateral hemispheres, or decreased global neuronal activity due to metabolic disturbances and deplete substrates for cerebral metabolism. Precise and immediate diagnosis leads to recovery of coma without any complications. The first step in approaching a child with a coma is a brief, to-the-point history and physical exam. It is crucial to know prodromal symptoms and initial signs before losing consciousness and the history of past medical and drug ingestion. For instance, in cases of metabolic causes, parents may mention myoclonic movement and or gradual progression of loss of consciousness in contrast to cardiac etiology. Also, vital signs, pupil reaction to light, brainstem reflex, skin, and funduscopic evaluation in physical exam is valuable. Management is based on etiology. If etiology is unknown, we should check finger-stick blood glucose immediately, and after that, urine

toxicology, carboxyhemoglobin level, electrolytes, CBC, blood, urine culture, and specific drug level are essential for investigation. EEG is necessary for possible nonconvulsive seizures, or if a diagnosis remains obscure brain CT scan is mandatory if there is a focal neurological sign, papilledema, or fever. ECG is carried out if cardiac syncope is possible, especially in positive family history for cardiac disease or sudden death. So, detailed history and physical exam help us correct diagnosis and following that correct management and in unknown causes, giving glucose after finger stick checking, serum therapy, O2 therapy or lorazepam if the nonconvulsive seizure is possible be lifesaving. In conclusion, a systemic and comprehensive approach to coma for early identification of underlying cause can be crucial for patient prognosis.
Keywords: Coma, Children

■Cardiac Manifestations in Pediatric COVID-19

Mohammad Reza Khalilian [1*]

[1] Department of Pediatrics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Department of Pediatrics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Myocarditis is usually diagnosed clinically by electrocardiograms, echocardiography, and increased cardiac enzymes since troponin is also defined as a marker of cardiac injury in children and adolescents. Myocarditis and pericarditis have been found in up to 40% and 25% of patients, respectively. Pericardial effusion occurred in up to 32% of patients. Together with the myocardial dysfunction findings, these characterize the pancarditis associated with COVID-19. Myocardial involvement may also be related to the presence of arrhythmias. In COVID-19, hypoxia, neurohormonal or inflammatory stress, and metabolic disorders contribute to changes in the cardiac rhythm. Some of the current drug therapies used in this disease can also induce arrhythmia, adversely affecting cardiac electrophysiology. Patients with COVID-19 have an increased risk of developing venous thrombosis, reaching 25%, with the highest risk in those with increased D-dimer and inflammatory markers, decreased fibrinogen, and those with the severe acute respiratory syndrome. There is suspicion mainly in patients who develop refractory hypoxemia or asymmetric edema of the lower limbs. Coronary thrombosis, in addition to the one being characterized, may correspond to one of the pathophysiological mechanisms of cardiovascular complications. Because of the systemic inflammatory response and imbalance in the oxygen supply, there is also an increased risk of coronary ischemia.
Keywords: Cardiac, Pediatrics, COVID-19

■Mucositis

Fatemeh Malek [1*]

[1] Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Childern's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Congenital Hematologic Disorders Research Center, Research Institute for Childern's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: fmalek@sbmu.ac.ir

Abstract

Mucositis has a considerable impact on the quality of life of oncologic patients and has a debilitating clinical effect on patients receiving chemotherapy. Oral mucositis occurs in approximately 50% of pediatric patients receiving chemotherapy and approximately 90 percent of patients undergoing hematopoietic stem cell transplantation (HSCT). Mucositis mainly occurs within three to fifteen days after initiation of chemotherapy and has a mean duration of two weeks. The patient suffers from pain, which in pediatric oncology patients, the treatment options are limited though. Mucositis begins with erythema of the buccal mucosal and progresses to erosion and ulcer. The ulcer will finally be covered by a fibrous layer. Fungal and viral infections could superimpose this condition. Mucositis is graded by the World Health Organization (WHO) criteria. Mucositis management in pediatric oncology emphasizes oral hygiene, local anesthetic agents such as Benzydamine or Chlorhexidine soft diet, and utilization of painkillers such as acetaminophen and narcotics to control the pain. The most prominent symptom is pain, so pain management is the main aim. Mucositis has the potential to influence cancer treatment protocol; as the dose-limiting toxicity effect would cause halting or modification of treatment chemotherapy plan of oncologic patients. Other causes in deterioration of mucositis are multiaspect including poor patient compliance, long term medication necessity, poor satisfaction with treatment, and administrative issues.
Keywords: Mucositis, Pediatric, Oncology

■Cardiac Management in Pediatric COVID-19 Disease

Fariba Alaei [1*]

[1] Pediatric Cardiology Department, Mofid Children's Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[*] *Corresponding author:* Pediatric Cardiology Department, Mofid Children's Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can involve children of all ages, although less frequently

and with a milder presentation than adults. Cardiovascular abnormalities (myocardial injury, acute myocarditis, cardiomyopathy, heart failure, arrhythmias, pericarditis, cardiogenic shock, pulmonary embolism, myocardial infarction) may accompany, especially with the multisystem inflammatory syndrome in children and adolescents (MIS-C). Severe disease is managed in the hospital setting. Supportive care is the mainstay of therapy. Antiviral therapy, immune-mediated therapies, empiric antibiotics, and therapy for influenza infection are used in selective patients. Cardiac management focuses on maintaining hemodynamic stability and providing adequate systemic perfusion. Children presenting with shock should be resurrected according to standard protocols. Vasoactive agents such as epinephrine or norepinephrine and, if possible, milrinone is used in fluid-refractory shock.

Children with Kawasaki disease (KD) features should receive standard therapies for KD, including intravenous immune globulin (IVIG), aspirin, and glucocorticoids. Patients with severe LV dysfunction, intravenous diuretics and inotropic agents, such as milrinone, dopamine, and dobutamine are suggested. Continuous cardiac monitoring is essential. In cases of the fulminant disease, mechanical hemodynamic support may be necessary. For moderate or severe manifestations (shock, left ventricular systolic dysfunction, elevated troponin or brain natriuretic peptide, arrhythmia, coronary artery aneurysm, or presentations requiring PICU care), therapy with combined IVIG plus a glucocorticoid is suggested. Patients may be at risk for venous thromboembolism due to COVID-19 associated hypercoagulability. Patients with MIS-C and those with severe LV dysfunction or CA aneurysms are at increased risk. It is suggested that all patients with MIS-C receive low-dose aspirin, and severe cases requiring PICU care receive prophylactic-dose anticoagulant therapy. Patients with current or prior VTE, severe LV dysfunction, large or giant CA aneurysms, markedly elevated D-dimer should receive therapeutic anticoagulation (low molecular weight heparin) plus aspirin. Most children with cardiac involvement have recovery of function by hospital discharge. The overall mortality rate for MIS-C is approximately 1 to 2 percent. Cardiology follow-up after discharge is recommended.

Keywords: Children, Cardiology, COVID-19

■Pediatric Oxygen Therapy

Ghamaratj Khanbabaee [1*]

1 Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

** Corresponding author:* Mofid Children Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: khanbabaeegh@yahoo.com

Abstract

The overall goal of oxygen therapy is to achieve adequate oxygenation using the lowest fraction of delivered oxygen, often called FDO2. However, achieving this goal is complicated by several factors. Despite more than 75 years of routine oxygen administration in pediatrics, clearly, it is not defined, leading to wide variations in practice. In the simplest terms, adequate oxygenation is the balance between oxygen delivery to the tissue and their oxygen consumption rate. Two components make up oxygen delivery: (1) oxygen-carrying capacity and perfusion factors that complicate the achievement of oxygen therapy goals include patient size and tolerance of delivery devices; variability in the use of delivery devices, suggesting that clinicians often lack adequate knowledge in the use of oxygen delivery equipment; and the lack of training in the concepts of oxygen delivery and equipment used to monitor the effects of oxygen therapy. Several physical signs and laboratory values can be assessed to identify a patient's need for oxygen. A lower than average PaO2 often diagnoses hypoxemia, most often considered < 80 mm Hg. A routinely sited indication for providing oxygen is when PaO2 is < 60 mm Hg in children, yet PaO2 alone is inadequate to determine oxygen delivery. Pulse oximetry has its limitations and is inaccurate in carbon monoxide poisoning, and the oxyhemoglobin dissociation curve can shift left (increased affinity for O2) or right (decreased affinity for O2).

Indications: Oxygen therapy is indicated when there is an abnormally low concentration of oxygen within the arterial blood, otherwise known as hypoxemia. Oxygen is necessary for the excellent metabolism of carbohydrates and the production of adenosine triphosphates. When oxygen levels do not meet the requirements of body function, tissue hypoxia occurs. This hypoxia may cause a series of undesirable problems, such as localized vasodilation, pulmonary vasoconstriction, metabolic acidosis, tissue necrosis, an increased risk of kernicterus, and impairment of surfactant production.

Contraindications: Although there are very few contraindications to oxygen therapy, oxygen therapy may cause over circulation within the pulmonary system as a potent pulmonary vasodilator in congenital heart disease patients with ductal-dependent lesions. In premature neonates, lower SpO2 may be targeted to reduce the toxic effects of oxygen therapy, such as retinopathy of prematurity or bronchopulmonary dysplasia.

Goals of Oxygen Therapy: The goal of oxygen administration is to achieve adequate tissue oxygenation. The system used to provide supplemental oxygen must be appropriate to the patient's size and clinical condition. The selection of the oxygen delivery device and flow is targeted to meet each patient's specific physiologic needs and therapeutic goals. Unfortunately, adverse reactions from the therapeutic use of oxygen are not well documented in pediatric patients. Therefore, oxygen therapy must be provided at accurate and safe levels with the lowest possible fractional concentration of inspired oxygen

Keywords: Oxygen, Pulmonary

■Effect of Sweet Almond Syrup Versus Methylphenidate in Children with ADHD

Monireh Sadat Motaharifard [1]*, Mohammad Effatpanah [2], Mehrdad Karimi [3], Fatemeh Nejatbakhsh [3]

[1] Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[2] Ziaeian Hospital, School of Medicine, International Campus, Tehran University of Medical Sciences, Tehran, Iran

[3] Department of Iranian Traditional Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: ms.motaharifard@sbmu.ac.ir

Abstract

Background and Purpose: Attention-deficit/hyperactivity disorder (ADHD) is the most prevalent neurodevelopmental behavioral disorder in children with an increasing incidence rate. Some patients do not respond to common medications or cannot tolerate their side effects. Sweet almond syrup as a Persian medicine preparation has been widely used in traditional medicine to treat various illnesses. This study aims to evaluate the efficacy and safety of sweet almonds for children with ADHD.

Materials and Methods: Fifty children aged 6 - 14 years with mild to moderate ADHD of combined subtype were recruited to the study. The participants were randomly assigned to two groups to receive either methylphenidate or sweet almond syrup. The outcomes were assessed using the Parent and Teacher ADHD Rating Scale every eight weeks.

Results: No significant differences were found between the two groups (F = 2.3, df = 1, P = 0.13, F = 0.57, df = 1, P = 0.47). There are no statistically significant differences between the two groups in hyperactivity and inattention categories. Results showed that the two treatments had similar effects on symptom reduction in ADHD children. No serious adverse events were observed during the study in the Intervention group.

Conclusion: Sweet almonds can be used as an effective treatment for children with ADHD, alone or in combination with stimulant drugs, significantly to reduce the side effects of such medications.

Keywords: Children, Attention-Deficit/Hyperactivity Disorder

■Prevalence of Using Complementary and Alternative Medicine in Children Referred to the Clinics of Mofid Children's Hospital

Monireh Sadat Motaharifard [1]*, Mahnaz Jamee [1], Atena Seifi [1], Masoumeh Mohkam [1]

1 Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

* *Corresponding author:* Pediatric Nephrology Research Center, Research Institute for Children's Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.Email: ms.motaharifard@sbmu.ac.ir

Abstract

Introduction: Recently, complementary and alternative medicine (CAM) methods have been increasing in children worldwide. The present study was conducted to determine the prevalence, related factors, types, sources of information, and mothers' knowledge.

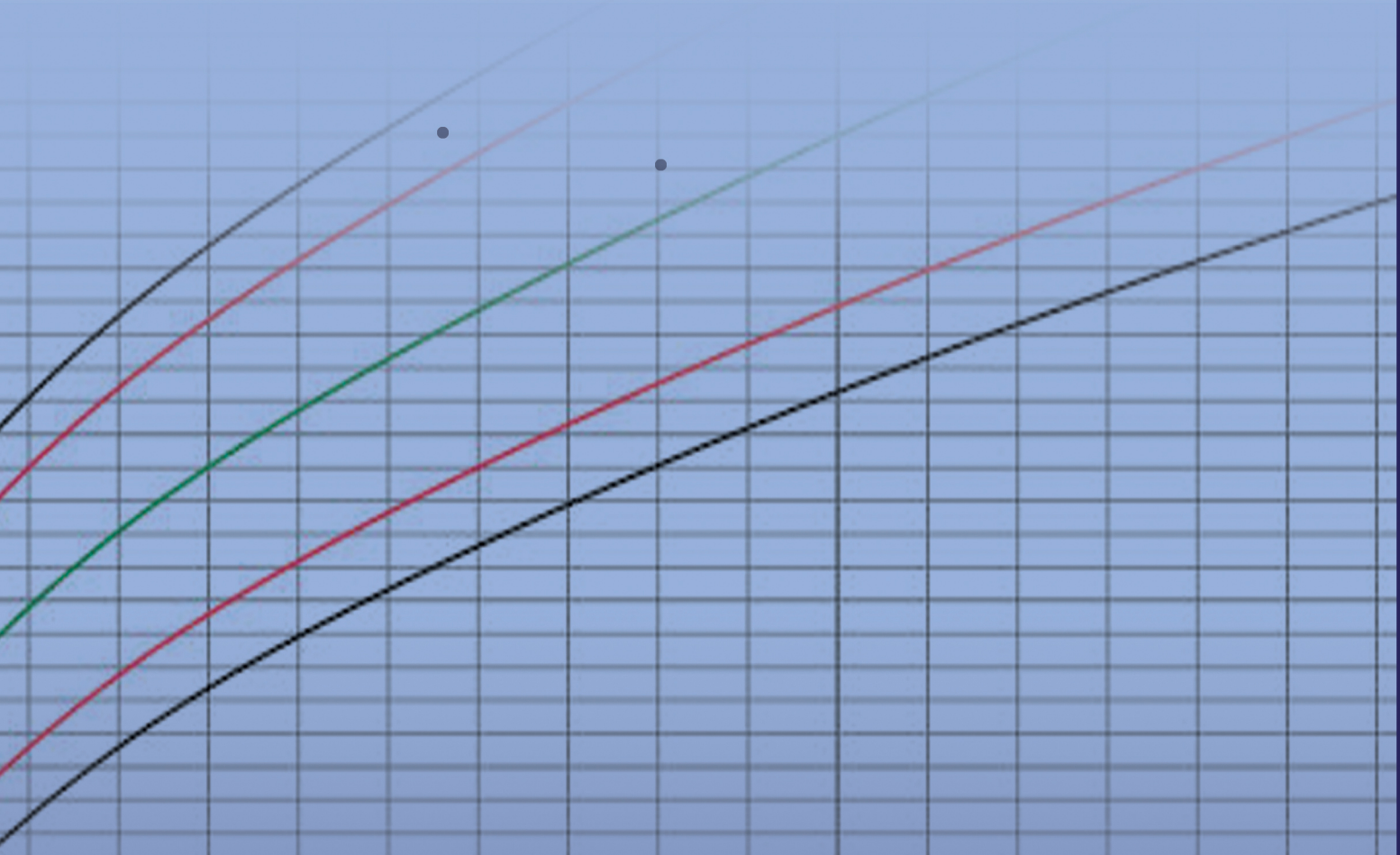
Methods: This descriptive study was carried out within two months from August - September 2021 through oral interviews and questionnaires with 400 mothers of children referred to a pediatric clinic in Mofid Hospital, Tehran.

Results: Of the 400 mothers, 319 (79.8%) believed in alternative medicine, whereas 81 (20.3%) did not believe in it. 55.5% of mothers had used CAM as medication at least once for their children during the last year. Most common treatments included medicinal herbs (95%), oil rub (41%), and massage (13.5%). There was a correlation between using CAM for children with the increased level of mother's education and mother being a housewife. 53.2% of mothers did not inform the pediatrician about using the CAM methods for their children. 91% of mothers received their information from relatives and neighbors, and physicians consist only 11% of the information source. CAM was used most often in children with respiratory tract and gastrointestinal symptoms.

Conclusion: Since about one-half of mothers used CAM methods and physicians had the minor maternal source of CAM information, it is highly recommended that physicians should learn about CAM methods.

Keywords: Children, Complementary Medicine, CAM

Journal of Comprehensive Pediatrics



Abstract of 17th Congress of Pediatric Emergencies and Common Diseases 12- 17 December 2021

Indexing Sources:

Scopus, Embase, Index Copernicus, Ulrichs Web, ROAD, Open J-Gate, DRJI, Word Cat, Google Scholar, ISC, Ricest, Barakatkns, Magiran, SID