

Ped 474 Course:

Lectures & Tutorials Objectives / Learning Outcomes:

A- Lectures:

By the end of each presentation, the student should be able to achieve the listed Objectives.

1. Pediatrics History

- 1.1. How to acquire a complete and accurate pediatric history with consideration of the child's age, development, and the family's cultural, socioeconomic and educational background.
- 1.2. Describe differences between the pediatric patients' history versus adult patients.

2. Neonatal Jaundice

- 2.1. Understand bilirubin synthesis, transport and metabolism and excretion
- 2.2. Distinguish between physiological and pathological jaundice in the newborn infant
- 2.3. Know the appropriate investigations for evaluating a jaundiced infant
- 2.4. Understands the strategies for prevention and treatment of jaundice

3. Congenital & Developmental Abnormality of Urinary Tract & UTI

- 3.1. To know the common congenital & developmental abnormality to the urinary system and how to diagnose them
- 3.2. Identify infectious and non-infectious causes of urinary complaints.
- 3.3. List and classify the common pathogens causing urinary tract infections in children.
- 3.4. Apply basic principles of pharmacology and indications for drugs used in the management of urinary tract infections

4. Hematuria & Proteinuria

- 4.1. To know the definition of hematuria and proteinuria
- 4.2. To know the differential diagnosis of hematuria and proteinuria
- 4.3. To know the clinical and laboratory approach to hematology and proteinuria
- 4.4. To know the nephrotic syndrome management

5. Normal Development & Behaviour

- 5.1. Highlight the importance of knowing the normal childhood development and behavior for the future medical practice.
- 5.2. Explain the logic of the evolving developmental and behavioral mile stones in human beings.
- 5.3. Explain the landmarks of these milestones during the critical periods of development in early childhood.
- 5.4. Show the technique of exploring these milestones in children.

6. Common Neonatal Problems

- 6.1. History and examination of newborn
- 6.2. Fetal maturation
- 6.3. Neonatal physiology
- 6.4. Normal variations in newborn
- 6.5. Minor trauma in newborn
- 6.6. Understand the basic metabolism of bilirubin.
- 6.7. Describe the factors that place a neonate at risk for developing severe hyperbilirubinemia.
- 6.8. Describe the physiologic mechanisms that result in neonatal jaundice.
- 6.9. List the common causes of indirect hyperbilirubinemia in the newborn.
- 6.10. Delineate the criteria for diagnosing each cause.
- 6.11. Discuss the major clinical features of acute bilirubin encephalopathy and chronic bilirubin encephalopathy (kernicterus).
- 6.12. List the key elements of the American Academy of Pediatrics guidelines for the management of hyperbilirubinemia.

7. Childhood Immunization

- 7.1. **At the end of the lecture the students will be able to:**
- 7.2. understand the milestones of vaccines
- 7.3. understand the ultimate goal of vaccination
- 7.4. know our national vaccination schedule
- 7.5. know the international vaccination schedule
- 7.6. the types of immunization
- 7.7. the adverse effect of vaccination

8. Common Rheumatic Diseases Recommend Focusing on the 3 Most Common

8.1. At the end of this lecture the students expected to:

8.1.1. 1st perform a proper history for a patient with arthralgia / arthritis

8.1.2. 2nd to know common pediatric rheumatology disorders such as:

8.2. Juvenile Idiopathic Arthritis

8.2.1. *Definition and classification*

8.2.2. *Etiology*

8.2.3. *Epidemiology*

8.2.4. *Clinical manifestation*

8.2.5. *Differential diagnosis*

8.2.6. *Laboratory findings*

8.2.7. *Radiology changes*

8.2.8. *Treatment*

8.2.9. *Course of the disease and prognosis*

8.3. Systemic Lupus Erythematosus

8.3.1. *Definition and classification*

8.3.2. *Etiology*

8.3.3. *Epidemiology*

8.3.4. *Clinical manifestation*

8.3.5. *Laboratory findings*

8.3.6. *Differential diagnosis*

8.3.7. *Treatment*

8.3.8. *Course of the disease and prognosis*

8.4. Juvenile Dermatomyositis

8.4.1. *Definition and classification*

8.4.2. *Etiology*

8.4.3. *Epidemiology*

8.4.4. *Clinical manifestation*

8.4.5. *Laboratory findings*

8.4.6. *Differential diagnosis*

8.4.7. *Treatment*

8.4.8. *Course of the disease and prognosis*

8.5. Henoch-Schonlein Purpura

8.5.1. *Definition and classification*

8.5.2. *Etiology*

8.5.3. *Epidemiology*

8.5.4. *Clinical manifestation*

8.5.5. *Laboratory findings*

- 8.5.6. *Differential diagnosis*
- 8.5.7. *Treatment*
- 8.5.8. *Course of the disease and prognosis*

8.6. Kawasaki Disease

- 8.6.1. *Definition and classification*
- 8.6.2. *Etiology*
- 8.6.3. *Epidemiology*
- 8.6.4. *Clinical manifestation*
- 8.6.5. *Laboratory findings*
- 8.6.6. *Differential diagnosis*
- 8.6.7. *Treatment*
- 8.6.8. *Course of the disease and prognosis*

9. Common Pediatric Oncology Diseases / Common Pediatric Hematological Disease: Focusing on the Most Common in Saudi Arabia

9.1. Immune Thrombocytopenic Purpura (ITP)

- 9.1.1. definition and criteria of diagnosis
- 9.1.2. history and physical exam findings
- 9.1.3. laboratory findings including findings of CBC in ITP
- 9.1.4. complications
- 9.1.5. treatment

9.2. PT, PTT tests:

- 9.2.1. how and when to utilize each or both of them as screening tests
- 9.2.2. know how to interpret their positivity or negativity in pertinent clinical conditions

9.3. Hemophilia (A) and hemophilia (B) and von Willebrand disease

- 9.3.1. diagnosis by history, physical findings and specific laboratory investigation
- 9.3.2. differential diagnosis of von Willebrand disease versus hemophilia

9.4. Acute lymphoblastic leukemia (ALL)

- 9.4.1. epidemiology including conditions predisposing to (ALL)
- 9.4.2. diagnosis: clinical and laboratory investigations
- 9.4.3. medical problems of newly diagnosed case of (ALL): recognition and solving
- 9.4.4. supportive care in ALL
- 9.4.5. side effects of commonly used chemotherapeutic agents

9.5. Differential diagnosis of:

9.5.1. Neuroblastoma versus Wilms tumor in terms of:

9.5.2. history, physical and important laboratory and radiological investigation

10. Seizure Disorder

- 10.1. To know that seizures (ZT's) a symptom NOT a disease
- 10.2. To know clinical observation crucial for Dx, classification, and Rx.
- 10.3. R/O other paroxysmal, non-epileptic disorders.
- 10.4. To know acute management & prevention of recurrence.
- 10.5. To know thoughtful & rational patient work-up
- 10.6. To know optimum use of anti-epileptic drugs (AED's)
- 10.7. To know comprehensive patient (not SZ's) management.

11. Common Pediatric Allergies

- 11.1. To know epidemiology and clinical presentation of common pediatric allergic conditions.
- 11.2. Become familiar with mediator produced by inflammatory cells and how they cause the signs and symptoms of allergy.
- 11.3. Understand the interaction of IgE mediated allergic conditions
- 11.4. Understand the relationship of early phase and late phase allergic response
- 11.5. Understand the basis of allergic response, role of inflammatory mediators and treatment of common pediatric allergies.

12. Congenital Heart Disease: Recommend to Combine in 1 lecture about Heart Disease in Children, focusing on the Most Common

- 12.1. Knowledge of the incidence of CHD
- 12.2. Knowledge of the common syndrome and associated CHD
- 12.3. Understanding of the classification of CHD
- 12.4. Understanding the concept of ductus dependent CHD.
- 12.5. Knowledge of the common types of acyanotic heart disease including VSD, ASD, AVSD, PDA, Coarctation of Aorta, aortic valve stenosis and pulmonary valve stenosis
- 12.6. Knowledge of the common cyanotic heart diseases including tetralogy of Fallot, transposition of great arteries, total anomalous pulmonary venous return, hypoplastic left heart syndrome, truncus arteriosus and tricuspid atresia

13. Knowledge of the incidence of acquired heart disease in Children

- 13.1.** Knowledge of the common acquired heart disease in children including acute rheumatic fever, Kawasaki disease, infective endocarditis, myocarditis, cardiomyopathy

14. Metabolic Disorders Recommend Focusing on the 3 Most Common

- 14.1. Understand the types, etiology and pathophysiology of metabolic disorders/inborn errors of metabolism.
- 14.2. Understand the role of genetics in metabolic disorders/inborn errors of metabolism.
- 14.3. Understand the general principles in clinical features and methods of detection of metabolic disorders.
- 14.4. Understand the clinical presentation of metabolic disorders/inborn errors of metabolism.
- 14.5. Understand the spectrum of metabolic disorders and the basic principles in management.

15. Adrenal Disorders

- 15.1. Understand Physiology of adrenal
- 15.2. Know Causes of adrenal insufficiency
- 15.3. Know outlines of :
- 15.3.1.1. Addison Disease
 - 15.3.1.2. Adrenal crisis
 - 15.3.1.3. Congenital adrenal hyperplasia
 - 15.3.1.4. Cushing Syndrome

16. Thyroid & Bone Mineralization Disorders

- 16.1. Understand Thyroid Function Test
- 16.2. Know outlines of :
- 16.2.1.1. Congenital Hypothyroidism
 - 16.2.1.2. Newborn screening for congenital hypothyroidism
 - 16.2.1.3. Acquired hypothyroidism
 - 16.2.1.4. Hyperthyroidism
 - 16.2.1.5. Causes of goiter

17. Growth & Puberty Disorders

- 17.1. Understand physiology of puberty

- 17.2. Know Causes and management approach to Precocious puberty
- 17.3. Identify and investigate children with delayed puberty

18. Introduction about Adolescent Medicine

- 18.1. Promoting adjustment to puberty and adolescence
- 18.2. Promoting safety and injury prevention
- 18.3. Promoting physical fitness
- 18.4. Promoting health dietary habits and preventing eating disorders and obesity
- 18.5. Preventing the use of tobacco products, use and abuse of alcohol and other drugs
- 18.6. Preventing severe or recurrent depression and suicide
- 18.7. Preventing learning problems
- 18.8. Preventing infectious diseases.

19. Pediatric Dermatology Recommend Focusing on the Most Common:

- 19.1. Describe how to approach a child with skin disease (history & examination)
- 19.2. Describe the common skin lesions seen by a general pediatrician indicating the features, differential diagnosis and broad lines of management

20. Childhood Nutritional Disorders

- 20.1. Describe the nutritional requirements for growth and maintenance of health for infants, children and adolescents.
- 20.2. Compare breast and formula feeding.
- 20.3. Emphasis on Breast Feeding benefits & Mother-Baby Bonding
- 20.4. Explain and demonstrate the ability to use growth charts in the longitudinal evaluation of height, weight and head circumference
- 20.5. Recognize normal variants of growth, such as familial short stature and constitutional delay.

21. Respiratory Tract Infections Recommend Focusing on the Most Common and the Most

Serious

- 21.1. To know how common this problem in pediatric medicine.
- 21.2. How to differentiate between upper and lower respiratory tract infection.
- 21.3. To know epiglottitis in details (History, physical examination, etiology, differential diagnosis, management).
- 21.4. To know croup in details (History, physical examination, etiology, differential diagnosis, management).
- 21.5. To know the pneumonia (bacterial vs viral)

22. MANAGEMENT OF COMMUNITY ACQUIRED PNEUMONIA (CAP) IN CHILDREN

- 22.1. Clinical features (How do children with CAP present?)
- 22.2. Etiology – Causes of CAP (virus, bacterial, atypical organism) does the etiology alter by age.
- 22.3. Investigations.
- 22.4. Severity assessment
- 22.5. Managements
- 22.6. Complications of CAP pneumonia (pneumatocele necrotizing pneumonia)

23. PULMONARY TB

- 23.1. Local Epidemiology vs. international epidemiology.
- 23.2. Presentations of pulmonary TB in children.
- 23.3. Diagnosis, investigations, managements.
- 23.4. How to approach children with positive PPD (child and family)

24. Genetic & Chromosomal Disorders

- 24.1. Understand the basics of chromosomal structural and numerical abnormalities including microdeletions.
- 24.2. Recognize the pattern of Mendelian inheritance.
- 24.3. Understand the consequences of uniparental inheritance of chromosomes.
- 24.4. Understand the concept of recurrence risk and its numerical assessment.

25. Obstructive Lung Diseases

- 25.1. Upon completion of this lecture, the student should be able to:
- 25.2. Understand the classification of airway obstruction anatomically and physiologically.
- 25.3. Recognize the causes of bronchiectasis and methods of diagnosis.
- 25.4. Define asthma
- 25.5. List the major pathologic factors responsible for airway obstruction in asthma
- 25.6. Discuss precipitating factors including:
 - 25.7. Infection
 - 25.8. Irritants
 - 25.9. Exercise
 - 25.10. allergens
- 25.11. Describe the clinical findings typical of asthma.
- 25.12. Gain familiarity with diagnosis, differential diagnosis (vascular ring, foreign body aspiration, cystic fibrosis, bronchiolitis, etc.)
- 25.13. Discuss the role of spirometry, radiography and allergic skin testing in the diagnosis and management of asthma
- 25.14. Discuss classifying asthma severity in patients based on day and night time symptoms and lung function- intermittent, mild persistent, moderate persistent, severe persistent.
- 25.15. Explain environmental control measures.
- 25.16. Discuss the different classes of drugs used in the medical management of asthma and their side effects and their use in step therapy based on asthma severity:
- 25.17. Describe current evidence to support the use of the following in the treatment of asthma
 - 25.18. Short acting bronchodilators
 - 25.19. Long acting bronchodilators
 - 25.20. Atropine derivatives (e.g. ipatroprium)
 - 25.21. Inhaled steroids
 - 25.22. theophylline (methylxanthenes)
 - 25.23. cromolyn and nedocromil
 - 25.24. leukotriene modifiers
 - 25.25. Oral and parental steroids
- 25.26. Understand different asthma devices including metered-dose inhaler, spacer devices, dry power inhalers.
- 25.27. Define and explain the management of acute asthma exacerbation.
- 25.28. Learn the indications for hospitalization of acute exacerbation of asthma.

26. Serious Pediatric Infections

- 26.1. Learn special concepts pertinent to children ID.
- 26.2. Outline a frame work for study of infectious diseases.
- 26.3. Enumerate examples of serious infections.
- 26.4. Classify episodes of bacteremia based on the clinical pattern
- 26.5. Describe how the child age and other risk factors determine

- 26.6. etiology of certain infections in pediatrics.
- 26.7. Appreciate utilization of knowledge of pathogenesis of diseases in therapeutic and preventive measures.

27. Children with Recurrent Infections

- 27.1.1. Definition and prevalence of primary immunodeficiency (PID) diseases
- 27.1.2. History taking and physical examination of children with suspected PID
- 27.1.3. Examples of common and prototypic PIDs (e.g.: SCID, XLA, CGD, DiGeorge syndrome, WAS, AT, LAD, complement deficiency)
- 27.1.4. Diagnostic approach to PIDs
- 27.1.5. Therapeutic approach to PIDs

28. Common Pediatric Infections

- 28.1. To discuss, show examples and life cases of the common pediatric infectious disease which
- 28.2. might they face in their real practicing life
- 28.3. Differentiate common pediatric infectious disease cases

29. Liver Diseases

- 29.1. Understand the anatomy & basic physiology of liver & biliary tree
- 29.2. Read & interpret the basics of liver function tests
- 29.3. Recognize the presentation of acute & chronic liver disease
- 29.4. Know the most common conditions causing neonatal liver diseases & chronic liver diseases in children

30. Drug Poisoning

- 30.1. To describe common childhood drug poisoning
- 30.2. How to manage childhood poisoning
- 30.3. How to prevent drug poisoning

31. Neuromuscular Disorders

- 31.1. Highlight the importance of studying childhood neuromuscular disorders for the future medical practice.
- 31.2. Explain the logic of diagnosing the underlying causes of the floppy infant syndrome, which is one of the commonest symptom complex in childhood.
- 31.3. Revise the diagnostic features of childhood neuromuscular disorders with special reference to their epidemiology in Saudi Arabia and other regions with similar ethnic background.
- 31.4. Highlight the importance of primary prevention of these disorders

TUTORIALS

32. Approach to children w/ polyuria / polydipsia & disorders of blood sugar control

- 32.1. Define polyuria
- 32.2. Know the causes
- 32.3. Differentiate between the different types of diabetes
- 32.4. Able to manage a patient presenting with diabetic Ketoacidosis / hypoglycemia
- 32.5. Able to manage a patient presenting with diabetes insipidus

33. Shortness of breath (SOB) / Chronic Cough

33.1. SOB:

- 33.1.1.** Anatomy / physiology - Mechanisms of breathing
- 33.1.2.** Definition
- 33.1.3.** Incidence of SOB
- 33.1.4.** Pathophysiology causing SOB
- 33.1.5.** Congenital causes of SOB
- 33.1.6.** Acquired causes of SOB
- 33.1.7.** Acute causes
- 33.1.8.** Chronic causes
- 33.1.9.** Diagnosis of SOB
- 33.1.10.** Management of SOB

33.2. Chronic Cough:

- 33.2.1. To know the epidemiology of cough in children.
- 33.2.2. To know the pathophysiology of cough mechanism.
- 33.2.3. To differentiate between acute and chronic cough.
- 33.2.4. To know the differential diagnosis of chronic cough in children.
- 33.2.5. Interactive pediatric cases from pediatric Pulmonology common practice (CF, FB, PCP, GERD, asthma, pertussis, TB, etc)

34. Children with diarrhea / constipation:

- 34.1. Definition of acute / chronic diarrhea
- 34.2. Differential diagnosis of infants and children with acute / chronic diarrhea
- 34.3. Work-up of a child acute / chronic diarrhea or malabsorption.
- 34.4. Management and prognosis of an infant and child with acute / chronic diarrhea

- 34.5. Know the differential diagnosis of constipation & how to differentiate between functional constipation & Hirschsprung disease
- 34.6. Know the pathophysiology, presentation, diagnostic work up & management of Hirschsprung disease

35. Respiratory Problems in Neonates

- 35.1. Initiate and encourage group discussion.
- 35.2. Learn how to read CXR, clinical photos, and pick up abnormal findings.
- 35.3. Encourage students to make case scenario for the projected slide.
- 35.4. Make students understand that clinical presentations of respiratory problems in newborns is non-specific for different pathologies and should have wide range of thinking regarding possible underlying disease, which will eventually create the students ability to form a wide range of differential diagnosis.

36. Approach to children with lymphadenopathy and/or organomegaly:

- 36.1. List common causes of lymphadenopathy and hepatosplenomegaly
- 36.2. Outline the key points in history and physical exam
- 36.3. Describe the relevant physical findings helpful in the differential diagnosis
- 36.4. Suggest a plan for work-up
- 36.5. Discuss the management of common etiologies

37. Failure To Thrive

- 37.1. Define and describe the meaning of failure to thrive
- 37.2. Discuss the importance of growth charts and the proper use of growth charts
- 37.3. Describe causes of failure to thrive
- 37.4. Stress the importance of non-organic causes of failure to thrive
- 37.5. How to take history from a patient who is not growing well
- 37.6. What things to examine and observe on a child who is not growing appropriately
- 37.7. Investigations and diagnosis of failure to thrive
- 37.8. Describe in brief the broad lines of management of children not growing well

38. Approach to children with anemia

- 38.1. Define normal ranges of hemoglobin and erythrocyte indices at birth and throughout childhood.
- 38.2. Know how to classify anemias based on red blood cell size.
- 38.3. Know how to classify anemias based on impaired erythrocyte production, increased erythrocytes destruction, and blood loss.
- 38.4. Know the clinical and laboratory features and treatment of common causes of childhood anemias.

39. Common Childhood Emergencies:

- 39.1. Describe common childhood emergencies.
- 39.2. Describe common respiratory illnesses in the pediatric population.
- 39.3. Define the different types of child maltreatment
- 39.4. List the different emergency rashes and their significance
- 39.5. Recognize normal and abnormal tests tendencies in children.
- 39.6. Describe the difference between emergency seizures and relation to fever
- 39.7. Define the risk of fever in the young age group
- 39.8. Describe the needs and risks of poisoning in the pediatric population

40. Child Safety & Protection:

- 40.1. Describe the epidemiology of childhood injury
 - 40.1.1.1. commonest injuries
 - 40.1.1.2. how to manage them
- 40.2. Child Abuse (Non-Accidental Injuries):
 - 40.2.1.1. Physical
 - 40.2.1.2. Emotional
 - 40.2.1.3. Neglect
 - 40.2.1.4. Sexual

41. Fluids, electrolytes and acid base balance

- 41.1. Describe the fluid composition of the body, the body water compartments and the normal movement of fluids and electrolytes between compartments
- 41.2. Describe clinical signs of dehydration
- 41.3. Describe the pathophysiology of fluid, electrolyte and acid-base imbalances
- 41.4. Describe principles of maintenance intravenous fluid
- 41.5. Describe principles of rehydration
- 41.6. Emergency management of severe electrolytes imbalance ;severe hypo/hyponatremia , severe hypo/hyperkalemia

42. Identifying the Sick Child:

- 42.1. To explain importance of early recognition of respiratory failure and shock.
- 42.2. Identify which aspects of the physical exam should be included in the rapid assessment of the critically ill child.
- 42.3. Describe the clinical features of the different types of shock.
- 42.4. Discuss the early recognition of life threatening conditions and how to initiate management.