UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

General and Specialistic Pediatrics

2021-6-H4101D037-H4101D119M

Aims

By attending the Course in Pediatrics the student should achieve: the skills asked to a physician to face and promptly recognize the most common paediatric topics in clinical practice (prevention, diagnosis and treatment) according to the differences among ages, gender,origin, supported by scientific evidences and by the knowledge of the latest advances and specific topics in the management of pediatric outpatients

Contents

How to carry out complete a paediatric investigation and examination, looking on the relationship among physician-parents-patient-specialized centre as well. The physiological newborn and main pathologies of neonatal age. Screening and vaccinations. Feeding. Somatic, pubertal, psychomotor development and deviances. Febrile seizures.
Approach to genetic disorders, malformation syndromes and metabolic diseases. Main drugs used in paediatric age. Epidemiology of the main paediatric diseases according to different ages and the differences between adults. Diagnosis related to age, symptoms, apparatus: acute and chronic diarrhea, vomiting, hematuria, proteinuria, urinary tract infections, fever; respiratory infections (upper and lower), infections chareacterized by fever and rash. Momps. Pertussis. Febrile seizures. Paediatric aspects of infectious disease (tuberculosis, HIV infection in childhood, bacterial and viral diseases).Meningitis and encephalitis. Rheumatic disease (fever), arthritis. Kawasaki disease. Bronchial asthma and food adverse reactions. Main endocrine disorders. Approach to the child with chronic pathology (anemia, hemato-oncological diseases, most frequent neoplasms of developmental age, celiac disease, cystic fibrosis, juvenile diabetes). Thrombocytopenia (PTI), S. Henoch purpura. Impact of multicultural topics in the diagnostic and therapeutic pathway of genetic, complex and rare disorders in paediatric age

Detailed program

THE APPROACH TO THE PEDIATRIC PATIENT: The healthy child's assessment and in the presence of the main childhood disorders

THE NUTRITION: aspects of the physiology of nutrition, nutritional needs and needs in relation to age. Steps of the feeding of the child: breastfeeding and formula feeding, weaning, supplements.

NEWBORN: Changes in the physiology that characterize the fetal-neonatal transition phase, the persistence of fetal circulation.Resuscitation in the delivery room: the instrumentation and the guidelines in use. Physiological newborn: how to perform the examination, the normal standard, the organization of the nursery, the promotion of breastfeeding, the rooming in. The low weight newborn: etiology of the delay of growth and low weight (metabolic, infectious diseases, malformations, pulmonary hypertension)The preterm infant: definition and causes of prematurity, , specific pathologies: the respiratory syndrome (pathogenesis, symptoms and diagnosis, hints of therapy). Intracranial hemorrhage: classification diagnosis, complications, prognosis. Periventricular leukomalacia; pathogenesis, diagnosis, prognosis. Necrotizing enterocolitis: pathogenesis, diagnosis, therapy, outcomes. Nosocomial infections: epidemiology, prevention, therapy.The main maternal pathologies with fallout on the fetus and on the newborn. The ischemic-hypoxic syndrome. Maternal-fetal congenital infections. Sudden Infant Death Syndrome (SIDS -) The main genetically transmitted diseases. Neonatal jaundice: physiological and incompatibility of ABO and Rh group.

GROWTH: Main characteristics of growth and somatic development from newborn to the adolescent and mutual relationships of the maturation processes of the various organs and systems. Growth standards and main methods of organization of growth data and main deviations. Failure to thrive and statural and / or weight/growth.

DISEASES PREVENTION: Screening tests in developmental age (prenatal, neonatal, enlarged neonatal and postnatal screening) and screenings for risk factors of metabolic, degenerative and vascular diseases at onset in the pediatric age. Vaccine schedules, required and optional vaccinations (recommended). Advantages and risks of the main vaccine measures in children.

PRINCIPLES OF THERAPY IN PEDIATRIC AGE: General principles of pediatric clinical pharmacology. Fever reducing therapy in the child (drugs and dosages). Criteria for the rational use of antibiotics.

MEDICAL GENETICS Pediatric recurrence risk of hereditary diseases (monogenic and multi-genome) - Major evolutions in molecular diagnostics. Signs of suspicion and diagnostic pathway in main chromosomal diseases and malformative syndromes. (above all craniofacial); Down , Turner , Klinefelter DeLange, Williams syndromes and syndromes predisposing to tumors. Neurofibromatosis type I. - Basic care approach to the child with complex disability on a genetic basis.

FREQUENT PEDIATRIC DISEASES Main pediatric diagnostic elements. Epidemiology of the main pediatric disorders.

THE DIGESTIVE SYSTEM Diseases in childhood with related symptoms: reflux, regurgitation, vomiting and dehydration (hypernatremic and hyponatremic) and therapeutic approaches. Digestive and absorption diseases in the pediatric age (celiac disease, fibrosis cystic of the pancreas) and the main changes in the small bowel, ileum and large bowel (diarrhea acute and chronic, constipation, acute and recurrent abdominal pain., inflammatory bowel diseases- IBD-) Abdominal pain in pediatric age.

LIVER DISEASES Differential diagnosis of the main acute and chronic liver diseases at onset in pediatric age; acute liver failure; therapeutic and nutritional support to the child with liver disease. Differential diagnosis of jaundice

THE RESPIRATOTY SYSTEM Pediatric features of the main upper and lower respiratory tract, pleural and mediastinal diseases (focus to faringo-tonsillitis, acute otitis media, laryngitis, bronchiolitis, broncho/pneumonia). Etiology, signs of suspicion and diagnostic procedures in the statesof hypersensitivity to pneumo-allergens in the child. Signs, symptoms and management of bronchial asthma in the child in acute and chronic occurrences. Pulmonary features of allergy. Cystic fibrosis.

ADVERSE REACTIONS TO foods, milk proteins, cow milk, lactose.

HEMATOLOGY Major changes in haematological values related to age. Acute and chronic anemia. Sickle cell anemia, spherocytosis, G6PDH deficency (focus to the drugs that can trigger hemolytic crisis), autoimmune hemolytic anemias, aplastic anemias. Congenital dyserythropoietic anemias. Indications and risks related to splenectomy and the prophylaxis of fulminant/severe sepsis. Causes ,classification and therapy in the iron deficiency anemia of the child. Iron prophylaxis in preterm baby. Thalassemia major clinical manifestations and state of carrier; therapeutic strategies of thalassemia major. Immune-mediated diseases and the characteristics of congenital and acquired immuno-deficiencies in pediatric age. Henoch-Schonlein purple. Immune Thrombocytopenic Purple (PTI). Platelet disorders .Splenomegaly, lymphadenopathy, hepatomegaly in children -Pediatric recommendations for splenectomy

INFECTIOUS DISEASES Measles, chicken pox, rubella, scarlet fever, erysipelas, minor rash, Eruptions, rashes and other cutaneous and mucous features of infectious diseases systemic pediatric megaloeritema, critical rash (exhantema subitum). Infections: HSV, varicella, zoster, CMV, EBV and Mononucleosic syndromes (draw attention to infection in pregnancy and in immunocompromised patients). Influenza, pertussis. TBC in the paediatric age. Prophylaxis of the tuberculin-positive child. Staphylococci and Streptococci infections. Clinical symptoms of suspicion of acquired immunodeficiency syndrome in children. Clinical topics and way of HIV transmission to the child, the staging of infection and disease, therapeutic support. Criteria for diagnosis of Kawasaki disease, treatment and follow-up in order to preventing complications. Clinical pictures in the suspicion of encephalitis or meningitis. Etiology of meningitis in pediatric age: bacterial, viral and fungal meningitis.

RHEUMATIC DISORDERS Osteo-arthropathies in childhood and inflammatory diseases. Septic arthritis, reactive arthritis, arthritis of rheumatic disease, juvenile chronic arthritis. Juvenile rheumatoid arthritis and pathogenesis of alike disorders. Rheumatic disease (rheumatic fever).

NEPHRO-UROLOGY Polyuria, dysuria, urgency, anuria and enuresis in pediatric age. Urinary tract infections in pediatric age. Hematuria and proteinuria in childhood. Nephrotic syndrome. Glomerulonephritis. Pediatric hemolytic-uremic syndrome. General (non-specialized) aspects of the malformations of the urinary tract with particular reference to the vesicoureteral reflux. Main pediatric abnormalities of the urinary tract (hypospadias, phimosis, undescended testes, posterior urethral valves and kidney's number and shape abnormalities, neurological bladder.

ENDOCRINOLOGY / GROWTH - Increase of weight in the child : risk factors and symptoms of disease; - Low harmonic stature(low family size, constitutional growth delay, GH deficiency,. Turner's syndrome, hypothyroidism, chronic diseases, deprivation-affective). - Puberal development - Genital changes (focus to cryptorchidism, hypospadias, sexual ambiguities) – Early puberty or delayed, adrenal gland disfunction due to 21-hydroxylase deficiency. Cryptorchidism, sexual /genital ambiguity. - Main disorders of the Ca-P metabolism in infancy: rickets and how to set up a treatment of the defective form. –Diabetes mellitus in pediatric age. - Insipid diabetes. - Pediatric endocrine diseases: thyroid, pituitary, adrenal and gonads diseases.

METABOLIC DISORDERS How to recognize the clinical features and hints of management of inborn diseases of metabolism in children –Lysosomal storage diseases (mainly: Fabry, Pompe, Mucopolysaccaridosis), toxic disorders (hints: Urea Cycle disorders, organic acid disorders,aminoacidopathies),carbohydrates/energy defects related disorders(glycogenosis).

CARDIOVASCULAR SYSTEM: approach to the cardiovascular system, by clinical and instrumental semeiotics to identify the main clinical signs of illness. Hypertension in childhood. Main congenital and acquired cardiopathies found in pediatrics and therapeutic approach

THE CHILD WITH CHRONIC AND PROLONGED DISEASE Diagnostic, therapeutic and rehabilitative approach to the child / adolescent affected by the following diseases: Celiac disease. Chronic renal failure. Hemophilia. Infantile leukemia: incidence, clinical picture of onset, main therapeutic aids, centers of reference, prognosis and psychosocial approach . Solid tumors in childhood: incidence, symptoms and markers,signs of suspicion, principles of therapy, prognosis (neuroblastoma, Wilms tumor, lymphomas, brain tumors). Histiocytosis: clinical features, principles of therapy and prognosis.

PEDIATRIC EMERGENCIES Trauma in pediatric age. Prevention and management of injuries. Poisoning. Bronchiolitis, laryngitis, croup, epiglottitis, dehydration, sepsis, shock, acute management of the seizures, febrile seizures

Prerequisites

Knowledge related to the preparatory courses according to the guidelines of the School of Medicine of Milano – Bicocca

Teaching form

Lectures:

USUALLY IN THE CLASROOM

During the COVID EMERGENCY PERIOD students will find asynchronous lectures on the e-learning platform

The first one only will be in synchronous mode (see schedule of 6th year)

Exercises:

USUALLY IN THE CLASROOM

During the COVID EMERGENCY PERIOD: in synchronous on the e-learning platform

active involvement of students, divided into groups, on clinical cases according to the PROBLEM BASED LEARNING based on the

topics included in the programme, using videoconferences systems.

Textbook and teaching resource

Nelson Essentials of Pediatrics –8th edition (english version) Autore/i:

Marcdante - Kliegman - Behrman – Nelson Editore: Elsevier – Saunders

Semester

First

Assessment method

USUALLY

Written test: 19 multiple choice questions (only 1 correct) and 1 “open question” followed by oral exam, after the successful revision of the written test

During che COVID EMERGENCY PERIOD, the oral examinations will be only performed by the WebEx platform, according to the University guidelines.

Office hours

By appointment

tel 039 - 2333513 (Segreteria Direzione Clinica Pediatrica)