UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

General and Specialistic Pediatrics

2425-6-H4101D037-H4101D119M

Aims

The Pediatrics Course aims to provide the student with the knowledge to gain the skills of the non-specialist medical graduate referring to the most common or relevant problems/diseases in the pediatric field in a dedicated program: from prevention to diagnosis and therapy in the overall management of the patient in light of recent progress and the level of evidence, as well as the fundamental knowledge in order to recognize situations that require prompt medical intervention or referral to a specialist or to centres of "excellence".
In the classroom, exercises: by means of clinical cases dealed with the Problem Based Learning technique, is required the interactive participation of the students in processes of differential diagnosis of pediatric pathologies, according to the differences in age, gender, origin/provenience of the patient.

Contents

General framework and management of the child in the presence of the main pathologies of the whole pediatric age and those that face in adulthood.
The setting of the visit, the doctor-parent-patient-specialist relationship, management of the medical record.
How to carry out a complete pediatric physical examination, detect the most important parameters of normal and pathological growth (auxological and neuropsychomotor development) and dentify the conditions that require prompt medical attention and/or intervention.
Impact of multicultural and gender aspects in the diagnostic and therapeutic path of diseases of pediatric age , including genetic, complex and rare. General principles of therapy. Epidemiology in relation to age.

Detailed program

THE APPROACH TO THE PEDIATRIC PATIENT: the assessment of health in the whole pediatric ages (see the

Syllabus *Pediatria* of the 5th year of course) and in the presence of the main disorders.
THE NUTRITION: aspects of the physiology of nutrition, nutritional needs in relation to age. Steps of the feeding of the child: breastfeeding and formula feeding, weaning, supplements (see the Syllabus *Pediatria* of the 5th year of course)
NEWBORN: changes in the physiology tof the fetal-neonatal transition phase, the persistence of fetal circulation. Resuscitation in the delivery room: the equipement and the guidelines
Physiological newborn: how to perform the examination, the normal standard, the setting of the nursery, the promotion of breastfeeding, the rooming in.
The low weight newborn: etiology of growth delay and of low weight newborn (metabolic and 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, complicances, prognosis. Periventricular leukomalacia;: pathogenesis, diagnosis, prognosis. Necrotizing enterocolitis: pathogenesis, diagnosis, therapy, outcomes. Nosocomial infections: epidemiology, prevention, therapy. The main maternal pathologies impacting on the fetus and on the newborn. The ischemic-hypoxic syndrome. Maternal-fetal congenital infections. Sudden Infant Death Syndrome (SIDS) The major genetically transmitted diseases. Neonatal jaundice: physiological and due to ABO and Rh group incompatibility.

GROWTH: major characteristics of growth and somatic development from newborn to the adolescent and relationships of the maturation processes among the different organs and systems.
Growth standards and main methods of organization of growth data and major pathological changes. 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.

PRINCIPLES OF THERAPY IN PEDIATRIC AGE: general principles of pediatric clinical pharmacology.
antifebrile therapy in the pediatric age (drugs and dosages). Criteria for the rational use of antibiotics.

MEDICAL GENETICS: pediatric recurrence risk of hereditary diseases (monogenic and multi-genomic) - 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 sthose predisposing to tumors. Neurofibromatosis type I. - Basic care approach to the child with complex disability due to genetic causes.

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

divided in

THE DIGESTIVE SYSTEM DISEASE 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.

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

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 major diseases of upper and lower respiratory tract, pleural and mediastinic (focus to faringo-tonsillitis, acute otitis media, laryngitis, bronchiolitis, epiglottitis,

broncho/pneumonia). Etiology, signs of suspicion and diagnostic procedures in case of 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.

HAEMATOLOGY: 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 carrier status; therapeutic approach to thalassemia major. Immune-mediated diseases and the pediatric features of congenital and acquired immuno-deficiencies. 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 rashes, enantemas, systemic pediatric megaloeritema, exhantema subitum and other cutaneous and mucous involvment of infectious diseases.
Infections: HSV, varicella, zoster, CMV, EBV and mononucleosic syndromes (with a focus on infections in pregnancy and in immunocompromised patients). Influenza, pertussis, parotitis.
TBC in the paediatric age. Prophylaxis of the tuberculin-positive child.
Staphylococcical and Streptococcical 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 of the 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. Urinary tract infections in the pediatric age. Hematuria and proteinuria . Nephrotic syndrome. Glomerulonephritis. Pediatric hemolytic-uremic syndrome. General aspects of the malformations of the urinary tract with particular reference to the vesicoureteral reflux. Major pediatric abnormalities of the urinary tract (hypospadias, phimosis, undescended testes, posterior urethral valves and kidney’s number and shape abnormalities), neurological bladder.

ENDOCRINOLOGY / GROWTH: weigh gain in the pediatric age/ obesity : risk factors and symptoms of disease.
Growth delay: harmonic/dysarmonic, familial ,constitutional , due to GH deficiency,Turner's syndrome, hypothyroidism, chronic diseases, deprivation-affective.
Puberal development
Genital physiological changes and pathological aspects (focus to cryptorchidism, hypospadias, sexual ambiguities)
Early or delayed puberty, adrenal gland disfunction due to 21-hydroxylase deficiency. Sexual /genital ambiguity.
Major disorders of the Ca-P metabolism in infancy: rickets and how to set up a treatment .
Diabetes mellitus in the pediatric age.
Diabetes insipidus
Pediatric endocrine diseases: thyroid, pituitary, adrenal and gonads diseases.
Hypoglicemia.

CONGENITAL METABOLIC DISEASES: 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 clinical signs of illness. Hypertension in childhood. Main congenital and acquired pediatric cardiopathies 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, onset, clinical features, hints of therapeutic approach, prognosis and psychosocial approach, reference centres . 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 of the physiology and basic sciences course
Attendance and participation in the internship activities of the first part of the course, 5th year

Teaching form

- Lectures: in-person delivery method starting from clinical cases proposed by the teacher, divided by pathologies/nosological areas (48 hours, 4 CFU)

-Exercises

- classroom exercises, with proactive engagement of students divided into 3 groups in the differential analysis of clinical cases according to the PROBLEM BASED LEARNING method and purposing/developing clinical issues (20 hours/group)
- activities under the supervision of the Teacher (4 hours/group)

Textbook and teaching resource

Nelson Essentials of Pediatrics –9th edition (english version) Autore/i: Marcdante - Kliegman - Behrman – Nelson Editore: Elsevier – Saunders

Semester

First semester

Assessment method

see general Syllabus - *INSEGNAMENTO *- of the Course

Office hours

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Sustainable Development Goals

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