UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Laboratory Sciences

2223-2-I0302D008

Aims

Student's Skills:

- to recognise the role, limits and aims of laboratory analysis, variability causes and errors
- To describe the plasma proteins study and diagnostic enzymology
- to define the role of diagnostic tests in diabetes, in cardiovascular, thyroid, hepatic diseases,
- To describe Pregnancy and kidney lab monitoring
- To describe electrolytes, acid-base balance study.
- To describe Urine exam, proteinuria and CSF tests
- To describe the physiopathology of primary haemostasis, of coagulation and fibrinolytic systems and inhibitors.
- To list the drugs acting on haemostatic system and their mechanism of action.
- To describe the role of haemostasis lab and illustrate pre-analytical, analytical features and related methods.
- To describe the principles of coagulation tests. TAO lab monitoring.
- To define ABO, Rh, and other systems and their lab study.
- To describe anti-erythrocytes antibodies, methods used to detect them and clinical meaning.
- To define methods for blood group assessment and for the search of anti-erythrocytes antibodies. To describe the physiopathology of haemolytic disease of the newborn and of autoimmune anaemia.
- To define the concept of transfusion medicine, and to describe adverse reactions and transfusion safeness.

Contents

The goal of the course is to provide the knowledge about roles, limits and aims of laboratory tests, Good Laboratory Practise, variability and errors, quality control. Fundamentals of protein study and diagnostic enzymology. Lab tests for the study of diabetes, cardiovascular, thyroid pathologies, hepatic, pregnancy, kidney physio-pathology, hydro electrolytic and acid-base balance. CSF and urine exam. Haemostasis and fibrinolysis

physiopathology and related lab tests. Platelets, red blood cell pathologies, and their diagnostics. Transfusion medicine.

Detailed program

- Lab tests: which, how and when.
- Good Laboratory Practice, variability and errors, quality control.
- Diabetes, Obesity e Cardio-vascular risk monitoring.
- AMI diagnostics.
- Thyroid, plasmatic protein, electrolytes, acid-base balance study.
- Kidney physio-pathology.
- Creatinine and GFR.
- Urine exam and proteinuria.
- CSF tests.
- Diagnostic Enzymology.
- Hepatic Diagnostics.
- Pregnancy lab monitoring.
- Haemostasis lab: pre-analytical, analytical features and related methods.
- Coagulation tests. TAO lab monitoring.
- ABO, Rh, and other systems and their lab study. Anti-erythrocytes antibodies and clinical meaning.
- Methods for blood group assessment and for the search of anti-erythrocytes antibodies. Physiopathology of Haemolytic disease of the newborn and of autoimmune anaemia.
- Blood components: preparation, storage and monitoring
- Transfusion medicine, adverse reactions and transfusion safeness.

Prerequisites

Objectives of the course of Clinical Biochemical Analysis (these are the courses indicated in Regolamento)

Teaching form

Lectures, tutorials

Textbook and teaching resource

Spandrio L. Biochimica Clinica Ed Sorbona.

Henry JB, et al. Clinical diagnosis and management by laboratory methods. Saunders Elsevier.

Prencipe L. Approccio alla Chimica Clinica.

Teachers will provide educational material

Semester

First semester

Assessment method

The final mark, based on the average score obtained by the students during the 2 evaluations, is set during an oral interview with the student, during which the written test is scrolled to check mistakes

Office hours

By appointment

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING