MALATTIE DEL SANGUE (MG0433)

1. language

Italian.

2. course contents

Coordinator: Prof. DE STEFANO VALERIO
Year Course: Vth year
Semester: IInd Semester,
UFC: 7
Modules and lecturers:
- ANATOMIA PATOLOGICA (MG0474) - 1 cfu - ssd MED/08
Prof. Francesco Pierconti, Luigi Maria Larocca
- MALATTIE DEL SANGUE (MG0476) - 4 cfu - ssd MED/15
Prof. Elena Rossi, Luciana Teofili, Valerio De Stefano, Stefan Hohaus, Luciana Teofili, Patrizia Chiusolo, Livio Pagano, Stefan Hohaus, Patrizia Chiusolo, Luciana Teofili, Luca Laurenti, Simona Sica, Livio Pagano
- MALATTIE DEL SANGUE TIROCINIO PROFESSIONALIZZANTE (MG0226) - 2 cfu - ssd MED/15
Prof. Luciana Teofili, Valerio De Stefano, Patrizia Chiusolo, Francesco D'Alo', Stefan Hohaus, Luca Laurenti, Livio Pagano, Nicola Piccirillo, Elena Rossi, Simona Sica, Federica Sora'

3. bibliography

A. Bosi, V. De Stefano, F. Di Raimondo, G. La Nasa, Manuale di Malattie del Sangue, Elsevier 2012
G. Castoldi, V. Liso, Malattie del sangue e degli organi ematopoietici 6^ed, McGraw Hill 2013
N. Giuliani, A. Olivieri. Ematologia-per medicina-scienze biologiche- biotecnologie mediche. Edizioni Idelson Gnocchi, 2020
P. Corradini, R. Foà. Manuale di Ematologia. Edizioni Minerva Medica, 2020

4. learning objectives

Knowledge and understanding (Dublin 1)
At the end of the course, students will have acquired:
- knowledge of the symptoms and signs that lead to a haematological disease;
- knowledge of the procedures for performing a bone marrow aspirate and a bone marrow biopsy and the respective indications;
- knowledge of the main applications in hematology of cytogenetics, molecular biology and flow cytometry examinations;
- knowledge of the main indications for the transfusion of blood components

Applying knowledge and understanding (Dublin 2)
At the end of the course, students will be able to:
- Knowing how to interpret a blood count and the report of a peripheral blood smear;

- Knowing how to distinguish a hyporigenerative anemia from an anemia due to increased destruction or loss;
- Knowing how to interpret an erythrocytosis;
- Knowing how to interpret a leukocytosis;
- Knowing how to interpret a platelet disease;
- Knowing how to interpret a leukopenia;
- Knowing how to interpret thrombocytopenia;
- Knowing how to interpret a report of protein electrophoresis and immunofixation of serum and urine;
- Knowing how to interpret basic blood coagulation tests;
- Knowing how to interpret a hemorrhagic diathesis;
- Knowing how to interpret a thrombotic diathesis;
- Knowing how to interpret a lymphadenomegaly;
- Knowing how to interpret a splenomegaly;
-Knowing how to interpret a bone marrow aspirate or bone marrow biopsy report.

At the end of the course students will be able to demonstrate autonomy of judgment **(Dublin 3)**, integrating the acquired knowledge and managing the complexities of concrete cases, as well as making judgments based on limited or incomplete information, reflecting on the social and ethical responsibilities connected the application of their knowledge and the impact of their judgments.
They will have acquired communication skills **(Dublin 4),** and will be able to communicate clearly and unambiguously their conclusions, as well as the knowledge and rationale underlying them, to specialist interlocutors (teachers, doctors, colleagues, medical team, professionals health professionals) and non-specialists (patients, their relatives, caregivers).
Finally, they will have acquired the ability to learn (**Dublin 5),** and will be able to continue to study mostly in a self-directed and autonomous way.

5. prerequisiti/PREREQUISITES

To understand the contents of the integrated course it is necessary to possess:
- General notions of biology;
- Notions of anatomy and histology of the hematopoietic and lymphatic system;
- Notions of physiology of the hematopoietic, lymphatic, and hemostatic system;
- Notions of general pathology of the hematopoietic, lymphatic and hemostatic system;
- Notions of human genetics

6. teaching methods

The teaching of the course will be divided into lectures and a professionalizing practical internship articulated for small groups with the aim of achieving the skills that allow the student to frame general and to master the specialist information of the discipline.

7. other informations

Interested students will have the opportunity to deepen some issues addressed in the integrated course of Blood Diseases through the following courses chosen by the student:
- *Diagnostic process of inherited and acquired thrombophilia - Prof. Elena Rossi*
- *Diagnostic process of acute and chronic lymphatic leukemia - Prof. Luca Laurenti*
- *Diagnostic process of myelodysplastic syndromes - Prof. Luana Fianchi*
- *Plasma exchange and cytoapheresis in hematology - Prof. Nicola Piccirillo*

Having passed one or more of the aforementioned elective courses will constitute a preferential qualification for admission to the internship in Blood Diseases and for the attribution of the degree thesis

8.methods for verifying learning and for evaluation

The frequency of the professional training internship in Blood Diseases and the favorable opinion certified by the reference teacher are preparatory to admission to the final exam.
The student will be evaluated with an oral exam and judgment in 30/30 (with the possibility of honors). The exam will be passed with a minimum grade of 18/30. The oral exam will consist of questions that may have as their topic the systematic exposure of haematological diseases and / or the solution of clinical cases proposed by the commission, with particular regard to the laboratory / instrumental examinations to be requested and the problems of differential diagnostics.
For the purposes of awarding the final grade, the commission will evaluate the following aspects:
- the student's ability to establish connections between the topics covered in different chapters of the program
- ability to independently use their knowledge and understanding of the teaching content to deal with an in-depth discussion on critical aspects relating to the topics covered
- knowing how to present their conclusions in a clear and logical way.

9.program

- Physiology of hematopoiesis
- Physiopathology of haemostasis (concept of haemorrhagic diathesis and thrombophilia)
- Red blood cell, hemoglobin, and iron metabolism disorders
- Blood loss anemia; iron deficiency anemia and nutritional deficiencies; pernicious anemia and other megaloblastic anemias
- Hemolytic anemias
- Aplastic anemia, pancytopenia
- Anemia associated with chronic diseases (to be held as a seminar in collaboration with Internal Medicine and other specialties)
- Hemoglobinopathies (thalassemia, sickle cell disease)
- Hemochromatosis
- Leukocyte disorders (leukopenia, agranulocytosis, and neoplasms)

- Hemorrhagic and thrombotic diseases
- Haemorrhagic coagulopathies (haemophilia, von Willebrand's disease, rare congenital haemorrhagic coagulopathies, platelet disorders, disseminated intravascular coagulation)
- Thrombocytopenia (purpura immune thrombocytopenia and other thrombocytopenia)
- Thrombotic purpura thrombocytopenia and related disorders
- Familial thrombophilias
- Neoplastic hematology
- Hodgkin's disease
- Non-Hodgkin's lymphomas
- Myeloproliferative diseases (myelodysplastic syndromes, acute and chronic myeloid leukemia, Ph-negative myeloproliferative neoplasms)
- Lymphoproliferative diseases (acute lymphoid leukemia, chronic lymphocytic leukemia and related diseases)
- Monoclonal gammapathies (MGUS, multiple myeloma, Waldenström disease)
- Eosinophilia
- Infections in the haemopathic patient
- Concept of sepsis, sepsis in the granulocytopenic patient
- Viral and fungal infections in the immunosuppressed patient
- Lymphomas related to bacterial and viral infections
- Malaria and mononucleosis
- Principles of treatment of anemia
- Principles of treatment of immune-mediated cytopenias
- Principles of prophylaxis and antithrombotic treatment (In collaboration with Pharmacology)
- Antiblastic treatments in hematology
- Transfusion of blood components and cell therapies (including transplantation of hematopoietic stem cells)
- Transfusion reactions and complications
- Principles of replacement treatment in congenital hemorrhagic diseases Applications of apheresis and plasma-exchange procedures