Approved

At the meeting of the Faculty Council
Medicine-2
Minutes No. 3 of 25.02.2014

Dean of the Faculty Medicine-2
PhD, associate professor M. Betiu

Approved

At the meeting of the chair of Oncology,
Hematology and Radiotherapy
Minutes No. 1 of 09.09.2013

Head of the chair,
PhD, university professor I. Mereuta

SYLLABUS FOR STUDENTS OF THE

FACULTY MEDICINE-2

Name of the course: **Hematology**

Code of the course: **S.08.O.046**

Type of course: **compulsory**

Total number of hours – 70:

lectures --- 20 hours, practical lessons --- 50 hours

Number of credits provided for the course: 3

Lecturers teaching the course: **associate professor Vasile Musteata,**

lecturer Liliana Bejan

Chisinau - 2014

Chisinau - 2014

I. Aim of the discipline: The study of etiology, pathogenesis, clinical manifestations, laboratory and instrumental options of patient examination axed on diagnosis of the diseases of hematopoietic system, to get hold of general principles of treatment and prophylaxis of this pathology.

II. Objectives obtained in teaching the discipline:

At the level of knowledge and understanding

- Defining the theoretical bases of hematology in normal condition and disease;
- Being aware of the etiology, pathogenesis, epidemiology of hematopoietic system diseases;
- Identifying the aspects of clinical and paraclinical examination of patients with hematopoietic system diseases;
- Detecting the clinical symptoms and syndromes of blood diseases;
- Defining the diagnostic criteria and identifying hematological nosological units;
- Knowing the principles of hematopoietic system diseases treatment and prevention.

At the level of application

- Performing the interrogation of hematologic patients and interpreting physical examination data;
- Using the modalities of diagnosis of anemia;
- Diagnosing and providing medical care for patients with different forms of anemia;
- Possessing the methods of investigation (puncture of lymph nodes, sternal puncture) of patients with hematological malignancies;
- Interpreting the blood count and myelogram data in different forms of hematological malignancies;
- Performing the differential diagnosis of lymphadenopathy and splenomegaly;
- Using the identification algorithm for main groups of bleeding disorders;
- Argumentation of the laboratory examination plan for patients with bleeding disorders;
- Interpreting the coagulogram in different coagulopathies;

- Providing the emergency care in hemolytic crises and hemorrhages caused by primary and secondary hemostasis disorders.

At the level of integration

- Appreciation of the importance of hematology within the context of General Medicine and its integration with connected medical subjects;
- Knowing the reactions of the hematopoietic system in different pathologies of internal organs;
- Performing the differential diagnosis of hematological malignancies and leukemoid reactions;
- Determining the acute disorders of hemostasis in surgical and obstetrical practice;
- Making optimal decisions when providing emergency care in critical situations;
- Formulating ethical and deontological principles in medical care of patients with leukaemia and malignant lymphomas.

III. Provisional terms and conditions:

Studying clinical hematology, one of the branches of internal medicine, is very important in teaching and preparing physicians specialized in different fields. It should be mentioned that patients with hematopoietic system diseases do not consult firstly the haematologist, but visit the family physicians, therapists, surgeons, dentists, etc. Therefore setting a correct diagnosis and timely detection of hematologic pathologies depends on the knowledge of different physicians in this field.

IV. Main theme of the course:

1. Hematology as one of the compartments of internal medicine. Organization principles and development strategies of hematologic service in the Republic of Moldova.
2. Morphology and physiology of hematopoietic system.
3. Normal hematopoiesis.
4. Anemias. Classification of anemias.
5. Iron deficiency anemia.
6. Vitamin B12 deficiency anemia.
7. Folate deficiency anemia.
8. Aplastic anemias.
9. Renal anemias. Anemias of chronic disorders.
10. Hemolytic anemias.
11. Agranulocytosis.

12. Hematological malignancies. Classification and correlation with the scheme of hematopoiesis.
13. Acute leukemias.
14. Chronic leukemias.
15. Chronic myeloid leukemia.
16. Idiopathic myelofibrosis.
17. Chronic monocytic and myelo-monocytic leukemias.
18. Chronic lymphocytic leukemia.
19. Polycythemia Vera.
20. Essential thrombocythemia.
21. Plasma cell dyscrasias: Multiple myeloma. Macroglobulinemia Waldenström.
22. Malignant lymphomas. Classification. Pathogenesis.
23. Hodgkin lymphoma.
24. Non-Hodgkin lymphomas.
25. Disorders of hemostasis: classification, metodele de investigaţie a dereglărilor hemostazei, interpretarea indicilor de laborator.
26. Thrombocytopenic purpura.
27. Hemorrhagic vasculitis.
28. Hereditary hemorrhagic teleangiectasia.
29. Hemophilia.
30. Von Willebrand disease.
31. Disseminated intravascular coagulation syndrome.

N d/o	TOPIC	Number of hours		
		Lectures	Practical lessons	Total
1.	Anemias. Definition. Classification of anemias. Iron deficiency anemia.	2	5	7
2.	Megaloblastic anemias. Vitamin B12 deficiency anemia. Folate deficiency anemia.	2	5	7
3.	Aplastic anemias. Metaplastic anemias. Renal anemias. Anemias of chronic disorders.	2	5	7
4.	Hereditary and acquired hemolytic anemias.	2	5	7
5.	Neoplastic disorders of hematopoietic system. Classification. Etiology. Pathogenesis. Acute leukemias.	2	5	7

6.	Chronic myeloid leukemia. Idiopathic myelofibrosis. Polycythemia vera.	2	5	7
7.	Plasma cell dyscrasias. Multiple myeloma. Macroglobulinemia Waldenström. Chronic lymphocytic leukemia.	2	5	7
8.	Malignant lymphomas. Classification. Pathogenesis. Hodgkin lymphoma. Non-Hodgkin lymphomas.	2	5	7
9.	Disorders of primary hemostasis. Immune thrombocytopenias. Hereditary hemorrhagic teleangiectasia.	2	5	7
10.	Disorders of secondary hemostasis (coagulation). Hemophilia. Von Willebrand disease. Totalization.	2	5	7
11.	Total:	20	50	70

V. Recommended literature:

- *A. compulsory:*

1. Williams M.E., Kahn M.J. American Society of Hematology Self-Assessment Program. Blackwell Publishing, 2005: 451 p.
2. Pillot Giancarlo, Chantler Marcia, Magiera Holly et al. The Washington Manual. Hematology and Oncology Subspecialty Consult. Lippincott, Williams & Wilkins, 2004: 279 p.
3. Musteata Vasile, Corcimaru Ion. Course of Lectures on Hematology and Military Therapy. Chisinau, 2004: 177 p.

- *B. additional:*

1. A.V.Hoffbrand, J.E.Pettit, P.A.Moss, Victir Hoffbrand. Essential Hematology. Blackwell Science Ink.: 4th edition, 2001: 349 p.

2. Atul B.Mehta, A. Victor Hoffbrand. Hematology at a Glance. Blackwell Science /ink.: 1st edition, 2000: 122 p.
3. Barbara J. Bain. Picture Tests in Hematology. Colour Guide. Churchill Livingstone, 1998: 116 p.
4. Marie E.Wood and Paul A.Brunn Jn. Hematology / Oncology. Secrets 2/e. Hanley & Belfus, 1999: 400 p.
5. Larry Hematology, for the House Officer Waterbury. Hematology (House Officer series)" by Lippincot, Williams & Wilkins: 4 th edition, 1996: 179 p.

VI. Teaching and learning methods:

The subject of Hematology is taught in a classic manner: lectures and seminars. At the lectures the theoretical course is held by the course titulars. At the seminars the students will study the clinical cases, tests, cytological smears of the peripheral blood using photon microscope.

VII. Suggestions for individual activity:

The department reserves the right to conduct some practical work applying interactive methods.

VIII. Methods of assessment:

Two totalizations are conducted annually at the subject of Hematology:

- Totalization No.1: Hematology (simple colloquial examination),
- Totalization No.2: Practical test (practical part of the exam).

Students with an annual average grade under 5 and students who didn't recover the absences at practical hours are not admitted to the examination in Hematology.

The examination in Hematology is combined and consists of an assessment of practical skills, multiple-choice test ("Test Editor" variant, MFSU "N.Testemiţanu") and oral exam.

The multiple-choice test consists of variants of 100 tests each combining all the topics studied at Hematology of which 40 tests are complement simple, and 60 tests are complement + multiple. The students have 2 hours to solve the test. The test is assessed with grades from 0 to 10.

The practical test is conducted on patients. Each student examines a patient with a hematopoietic system disease for 30 minutes. Thereafter he/she reports the anamnesis and objective data to the examiner, gives the presumed

diagnosis and establishes the investigation and treatment plan. The test is assessed with grades from 0 to 10.

The examination topics are approved at department's meeting and are brought to students' knowledge at least one month before examinations.

The final grade consists of 4 components: annual average grade (coefficient 0.3), practical test (coefficient 0.2), multi-choice test (coefficient 0.2) and oral test (coefficient 0.3).

The knowledge is assessed with grades from 10 to 1 without decimals, as follows:

- 10 or „excellent" (equivalent to ECTS – A) shall be awarded for knowing 91-100% of material;
- 9 or „very good" (equivalent to ECTS – B) shall be awarded for knowing 81-90% of material;
- 8 or „good" (equivalent to ECTS – C) shall be awarded for knowing 71-80% of material;
- 6 and 7 or „satisfactory" (equivalent to ECTS – D) shall be awarded for knowing 61-65% and 66-70% of material respectively;
- 5 or „sufficient" (equivalent to ECTS – E) shall be awarded for knowing 51-60% of material;
- 3 and 4 or „satisfactory" (equivalent to ECTS – FX) shall be awarded for knowing 31-40% and 41-50% of material respectively;
- 1 and 2 or „unsatisfactory" (equivalent to ECTS – F) shall be awarded for knowing 0-30% of material;

Students who are not present for examination without good reasons are recorded as "absent" which equal to the grade 0 (zero).

Students are entitled to 2 supplemental examinations in case of fail.

Methods of mark rounding

The average of current and final marks	Final mark
5	**5**
5,1-5,5	**5,5**
5,6-6,0	**6**
6,1-6,5	**6,5**
6,6-7,0	**7**
7,1-7,5	**7,5**
7,6-8,0	**8**
8,1-8,5	**8,5**
8,6-9,0	**9**
9,1-9,5	**9,5**
9,6-10	**10**

Absence on examination without good reason shall be recorded as "absent" and is equivalent to 0 (zero). The student has the right to re-take the exam twice.

IX. Language of study: Romanian, Russian, English, French.

Head of the chair of Oncology, Hematology and Radiotherapy, university professor **Ion Mereuta**

Studies chief on Hematology of the chair of Oncology, Hematology and Radiotherapy, associate professor **Vasile Musteata**