

GOALS AND OBJECTIVES FOR HEMATOLOGY

Hematology

Overview:

The discipline of hematology relates to the care of patients with disorders of the blood, bone marrow, and lymphatic systems. It includes anemias, hematologic malignancies, other clonal processes, and congenital and acquired disorders of hemostasis, coagulation, and thrombosis. The general internist should be competent in 1) the detection of abnormal physical, laboratory, and radiologic findings relating to the lymphohematopoietic system; 2) determining the need for bone marrow aspirate and biopsy and lymph node biopsy; 3) the initial diagnostic evaluation and management of the hemostatic and clotting system; 4) the assessment of the indications and procedure for transfusion of blood and its separate components; 5) the management of therapeutic and prophylactic anticoagulation; 6) the diagnosis and management of common anemias; 7) the pharmacology and use of common chemotherapies; and 8) the management of neutropenia/immunosuppression.

The range of competencies expected for a general internist will vary depending on the availability of a hematologist in the primary care setting. For example, in some communities

a general internist may be responsible for bone marrow examination and administration of chemotherapy for certain disorders in conjunction with consultative assistance from appropriate hematologist and pathologist colleagues.

(N.B. Leukemias and lymphomas are found in the Oncology section.)

Clinical Training and Education in Hematology

Residents in internal medicine, under the supervision of hematology fellows and faculty specialists, participate in the care of both outpatients and inpatients with Hematologic disease. First-year residents train in the direct care of hospitalized patients in addition to their participation in the delivery of ambulatory hematologic care. Junior and Senior residents train in the direct care of private patients requiring hospitalization and train as consultants in Hematologic medicine. Residents in internal medicine participate in the Hematology service's clinical conferences and one month is devoted each year to core didactic instruction in Hematologic diseases.

Common Clinical Presentations:

- Abnormalities of peripheral blood smear
- Bleeding, bruising, or petechiae
- Family history of anemia or bleeding disorder
- Lymphadenopathy
- Pallor or fatigue
- Recurrent infections or fever/neutropenia
- Splenomegaly
- Venous or arterial thrombosis, including recurrent thrombosis

Procedure Skills:

- Therapeutic phlebotomy
- Bone marrow aspiration and core biopsy (optional)

ORGAN AND SYSTEM COMPETENCIES IN INTERNAL MEDICINE

Clinical Training and Education in Hematology (Cont'd):

Primary Interpretation of Tests:

- Peripheral blood smear
- Bone marrow aspiration and core biopsy (optional)

Ordering and Understanding Tests:

- Bone marrow aspirate, biopsy, and special stains
- Chromosome analysis-peripheral blood and bone marrow
- Clotting assay, including factor levels and mixing studies
- Hemoglobin electrophoresis
- Iron studies
- Lymph node biopsy and lymphoid cell immunophenotype
- Radiologic, sonographic, and nuclear studies to assess adenopathy, splenomegaly, and red cell mass
- Serum and urine electrophoresis
- Vitamin B12 levels and Schilling test

Hematology:

Clinical Conditions:

Hemochromatosis

Hemostasis and thrombosis

- Abnormal coagulation (abnormal prothrombin and partial thromboplastin times)
- Anticardiolipin antibody syndrome
- Anticoagulation, fibrinolysis (therapeutic)
- Disseminated intravascular coagulation
- Hypercoagulable state
- Hyperviscosity syndrome

Leukocyte disorders

- Immunosuppression
- Neutropenia
- Leukemoid reaction

Myeloproliferative disorders

- Chronic myelogenous leukemia
- Polycythemia vera

Platelet disorders

- Thrombocytopenia
- Platelet dysfunction
- Thrombocytosis

Polycythemia, secondary

ORGAN AND SYSTEM COMPETENCIES IN INTERNAL MEDICINE

Clinical Training and Education in Hematology (Cont'd):

Red cell disorders

- Anemia
- Hemoglobinopathy (e.g., sickle cell disease)

Transfusion therapy