Leukemia and Lymphoma Overview

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Topics

• Acute leukemias
  • Acute lymphocytic leukemia (ALL)
  • Acute myelogenous (granulocytic) leukemia (AML or AGL, rarely ANLL)
• Chronic leukemias
  • Chronic myelogenous (granulocytic) leukemia (CML, or CGL)
  • Chronic lymphocytic leukemia (CLL)
• Multiple myeloma

Diagnostic Studies

• Peripheral blood
• Bone marrow
• Cytogenetics
• Flow cytometry
• Cytochemistry (special stains)
• Molecular markers
• For myeloma-SPEP, UPEP, Quantitative immunoglobulins, immuno electrophoresis
**Staging**

- Most leukemias are not staged
- Chronic lymphocytic leukemia (CLL)
  - 5 Stages (Rai-Sawitsky) classification, 0 - IV
  - Based upon lymphocyte numbers, adenopathy, anemia, thrombocytopenia
- Multiple myeloma
  - 3 stages, based upon multiple factors: hemoglobin, M protein, calcium, bone lesions

**Prognostic Factors**

- Vary with leukemia type
  - AML
    - 7 subtypes, M1 through M7 (M3 especially important)
    - Cytogenetics
  - ALL
    - Cytogenetics
  - CGL
    - Sokal classification
Treatment - Acute Leukemias

- Chemotherapy
  - Induction
  - Consolidation/re-induction
  - Maintenance
- Central nervous system prophylaxis-intrathecal chemotherapy
- Supportive therapy
  - Growth factors

Treatment - Acute Leukemias

- High dose chemotherapy with stem cell rescue
- Monoclonal antibody - Mylotarg
- For acute progranulocytic leukemia (M3)
  - All-trans retinoic acid (ATRA)
Treatment - Chronic Leukemias

• CLL - chlorambucil, cyclophosphamide, prednisone, fludarabine, rituximab, Campath 1-H
• CML - Hydroxyurea, α-interferon, Gleevec
• MM - alkeran/prednisone, VAD (vincristine, Adriamycin, dexamethasone), stem cell transplant, thalidomide

Response Assessment

• Complete (hematologic) response
• Partial response
• New categories of response: CR-plt
• Relapse
Follow-up

- Blood counts
- Bone marrows
- Cytogenetics
- Myeloma - SPEP, UPEP, bone x-rays

CALGB CRA Orientation
Disease Modules
Lymphomas
Topics

• Hodgkin’s Disease (HD)
• Non-Hodgkin’s Lymphomas (NHL)

Special Considerations

• Leukemia-lymphoma?
• Transformation from one cell type to another
• Composite lymphomas
• HD-nodal until disseminated
• NHL-frequently extranodal
Diagnostic Studies

- Lymph node biopsy
- Bone marrow aspiration and biopsy
- Flow cytometry
- Cytogenetics

Staging Studies

- Bone marrow aspiration and biopsy
- CTs
- Radionuclide scans: bone, Gallium, PET
- GI x-rays
- Spinal fluid analysis
- Others
Staging

- Same system for HD and NHL
- 4 Stages
  - I One lymph node group
  - II Two lymph node groups
  - III Nodes above and below diaphragm
  - IV Organ involvement

Prognostic Factors

- Stage—which factors in systemic symptoms, extranodal disease, and tumor bulk
- Histologic subtype
  - Hodgkin’s Disease
    - Lymphocyte dominant
    - Nodular sclerosing
    - Mixed cellularity
    - Lymphocyte depletion
Prognostic Factors

• Stage - which factors in systemic symptoms, extranodal disease, and tumor bulk

• Histologic subtype
  – Non Hodgkin’s Disease (up to 17 subtypes)
    • Follicular/diffuse
    • Cell type
    • Patterns

Prognostic Factors

• Histologic subtype
  – Non Hodgkin’s Disease
    • Low grade (indolent)
    • Intermediate grade
    • High grade (aggressive)
Treatment

- Chemotherapy
- Radiation therapy
- Monoclonal antibodies - with or without radiolabel or toxin
- High dose chemotherapy with stem cell rescue

Response Assessment

- Complete response
- Partial response
- Stable disease
- Progression/relapse
Follow-up

- Relapse
- Survival
- Toxicity (including second malignancies)
- Quality of life