# Oral Health and Diagnostic Sciences

## Leukemia, Lymphoma and Multiple Myeloma Guidelines
*(Hodgkins, Non-Hodgkins, Burkitt, Multiple Myeloma)*

### Questions to Ask / Necessary Information

**Ask Patient:**
- What kind of hematologic malignancy (leukemia, lymphoma, MM and sub-type) do you have/have you had?
- When were you diagnosed?
- What treatment will you receive? Radiation therapy? Chemotherapy? Bone marrow or stem cell transplant?

**Ask Physician:**
- Is the patient going to receive chemotherapy?
- If yes, then: What is the patient’s CBC, including ANC and platelet count?
- Does the patient have a central venous catheter?
- What is the schedule of treatments so safe dental treatment can be planned around treatment?
- If myelosuppresion is a side effect, how severe has the neutropenia and thrombocytopenia been? When after chemotherapy did this occur? What other toxic side effects has the patient experienced?
- Is the patient with an acute dental/periodontal abscess better managed with systemic (oral or IV) antibiotics until blood counts recover rather than undergoing a surgical procedure today?
- Is the patient going to receive radiation therapy? If so, to what dose and will the salivary glands be included in the field?
- When does the patient need to begin radiation therapy?
- What dose of radiation will the mandible/maxilla receive?

### Risk for Medical Emergency

**Bleeding:**
- Persistent bleeding after minor dental procedures needs to be evaluated.
- Platelet count should be available in patients receiving chemotherapy. Platelet counts below 75,000 may require platelet management to support surgical hemostasis.

**Infection:**
- Persistent bleeding after minor dental procedures needs to be evaluated.
- Platelet count should be available in patients with leukemia receiving chemotherapy. Platelet counts below 50,000 may require platelet management to support surgical hemostasis.
- Uncontrolled infection and poor wound healing when patient’s blood counts are low
- Based on oncological input, antibiotic prophylaxis may be indicated prior to invasive treatment

### Pertinent Laboratory Information

**HL:**
Diagnosis made on basis of nodal or bone marrow biopsy aspirate
Tumorous tissue typically shows large, multinucleated Reed-Sternberg reticulum cells

**NHL:**
Diagnosis made on findings of excisional biopsy of involved lymph node
Tumorous cells classified by lineage (B, T, or NK cell), then differentiation
CBC count, chemistry screen, chest radiographs, CT scans and bone marrow biopsy aid in proper staging of disease

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BL:  
Radiographic-osteolytic jaw lesions with ill-defined margins and tooth displacement  
Histologic-tumor cells darkly stained with small, prominent nucleoli and high mitotic index “starry sky” appearance

MM:  
Osteolytic bone lesions, elevated serum calcium, increased immunoglobulin light chains (Bence-Jones proteins) in the urine, anemia, neutropenia, and thrombocytopenia  
Diagnosis confirmed by protein electrophoresis serum with presence of myeloma or monoclonal (M) protein band  
Elevated BUN and serum creatinine indicate renal improvement; low serum albumin level and increasing levels of β-2 microglobulin indicate a poorer prognosis

Leukemias:
Diagnosis is made on basis of serology, or bone marrow aspirate.  
- AML (Acute Myelogenous Leukemia): At least 20% myeloblasts are found in bone marrow and peripheral blood  
- ALL (Acute Lymphoid Leukemia): 100 fold more blast cells than normal.  
- CML (Chronic Myelogenous Leukemia): WBC counts greater than 50,000/microliter and basophilia and eosinophilia are present.  
- CLL (Chronic Lymphocytic Leukemia): Greater than 5,000 mature lymphocytes/microliter.

Management For Dental Treatment

Preoperative Management
- It should include an assessment of nutritional status, functional status, and symptom control (particularly regarding cancer-related pain) in addition to an assessment of general medical issues.  
- The examination allows the dentist to determine the status of the oral cavity before cancer treatment begins and to initiate necessary interventions that may reduce oral complications during and after that therapy. Ideally, this examination should be performed at least 1 month before the start of cancer treatment to permit adequate healing from any required invasive oral procedures.  
- Obtain WBC, CBC, physician consultation  
- Eliminate sources of infection  
- Observe orofacial & radiographic changes  
- Initial goal is to quickly induce complete remission  
- Dental treatment should be performed always after consultation with the specialist.  
- It is important to carry out a detailed history, a comprehensive oral and dental evaluation and a complete radiographic exam.  
- Dental treatment should be performed before starting the chemo/radiotherapy.  
- Patients in long-term remission can undergo dental treatment; while patients with advanced or relapsed disease with reserved prognosis should receive palliative or urgent treatment only.

Management During Treatment
- Bleeding tendency (secondary to thrombocytopenia)  
- Increased risk of infection- odontogenic infections & opportunistic infections & impaired immune function  
- Risk of developing osteonecrosis of the jaw  
- Anemia  
- Corticosteroids treatment  
- Secondary malignancies  
- Specific considerations  
- Routine oral care- frequent recall visits  
- After induction chemotherapy- bone marrow biopsy obtained  
- Effective oral hygiene is important throughout cancer treatment, with emphasis on oral hygiene beginning before treatment starts
Postoperative Management

- Continued low-dose post-remission therapy much be used to ensure prolonged survival
- Long-term survivors of cancer treated with high-dose chemotherapy alone or chemoradiotherapy will generally have few significant permanent oral complications
- Regimens that incorporate total body irradiation may result in permanent salivary gland hypofunction/xerostomia, which is the most frequently reported late oral complication
- May need long term evaluation of graft versus host disease if patient received HSCT

Oral Manifestations

- Gingival enlargement
- Gingival bleeding
- Periodontal disease
- Petechiae
- Mucosal ulcers
- Fungal infections (candidiasis, mucormycosis, aspergillosis)
- Viral infections (HSV, CMV)
- Oral paresthesia
- Cervical lymphadenopathy and extranodal or intraoral tumors
- Mucositis
- Salivary gland dysfunction
- Altered taste
- Discomfort ingesting solids and liquids
- Increased caries rate

Lymphoma: Intraoral lymphatic involvement (most commonly along Waldeyer’s tonsillar ring)

MM: jaw lesions, soft tissue lesions, soft tissue deposits of amyloid
“punched-out” lesions or mottled areas on dental radiographs
Extramedullary plasma cell tumors can occur in oropharynx
Mucositis, neutropenia and infection, bleeding, GVHD

References