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Optimizing Dental Care: Preventing Complications in Leukemia Patients

Definition and Clinical Relevance

Leukemia is a malignant hematologic neoplasm characterized by clonal, uncontrolled proliferation of immature hematopoietic cells (blasts) in the bone marrow. This condition disrupts normal production of red blood cells, white blood cells, and platelets, resulting in anemia, infection susceptibility, and bleeding complications. Treatment typically involves chemotherapy, immunotherapy, new targeted drugs, and in some cases, hematopoietic stem cell transplantation.

General Classification

1. *Acute Leukemias*

- Acute lymphoblastic leukemia (ALL)
- Acute myeloid leukemia (AML)

Rapid clinical progression; requires urgent treatment and high risk of infection and hemorrhage

2. *Chronic Leukemias*

- Chronic lymphocytic leukemia (CLL)
- Chronic myeloid leukemia (CML)

Indolent course; fluctuates between stable phases and transformation

Common Oral Manifestations

- Gingival hyperplasia (not plaque-related)
- Spontaneous gingival bleeding
- Marked mucosal pallor
- Petechiae and ecchymosis
- Painful oral ulcers
- Recurrent fungal (e.g., candidiasis) and viral (e.g., herpes) infections
- Delayed wound healing after dental procedures

Recommended Laboratory Tests by Dentists

- Complete blood count (CBC) with differential
- Platelet count (risk of bleeding if $<75,000/\text{mm}^3$)
- Absolute neutrophil count (infection risk if $<1,000/\text{mm}^3$)
- PT, aPTT (if liver involvement or thrombocytopenia)
- Disease status report or treatment phase documentation

Recommended Dental Management

1. *Pretreatment Evaluation:*

- Mandatory consultation with the treating hematologist
- Determine current disease phase: active chemotherapy, remission, post-transplant, etc.
- Evaluate hematologic stability (particularly platelets and neutrophils)

2. Non-Invasive Procedures:

- Safe if clinically stable
- Gentle prophylaxis and meticulous plaque control
- Restorative treatment without bleeding risk
- Topical chlorhexidine and neutral fluoride rinses
- Oral hygiene education during chemotherapy phases

3. Invasive Procedures:

May be performed only if:

- Platelet count $>75,000/\text{mm}^3$
- Absolute neutrophil count $>1,000/\text{mm}^3$
- Explicit approval from hematologist
- Hemostatic and antibiotic support as needed (e.g., platelet transfusions, prophylactic antibiotics)
- Use of atraumatic technique, firm sutures, topical tranexamic acid, and close monitoring for at least 72 hours
- Complex cases may require hospital setting

4. Patients Post Bone Marrow Transplant:

- Avoid invasive procedures during the first 6 months post-transplant
- High risk of opportunistic infections, severe mucositis, and prolonged bleeding
- Full coordination with transplant and internal medicine teams required

Referral to Hematologist

All patients with a leukemia diagnosis must be referred to their hematologist prior to any invasive dental procedure. The hematologist will:

- Determine the safest timing (e.g., between chemotherapy cycles)
- Prescribe necessary support measures (transfusions, antibiotics)
- Identify the level of immunosuppression
- Approve or delay treatment based on systemic status

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