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## Proactive Management of Bleeding in Myelodysplastic Syndromes and Myeloproliferative Neoplasms

### Definition and Clinical Relevance

Myelodysplastic syndromes (MDS) and myeloproliferative neoplasms (MPNs) are a group of clonal hematopoietic stem cell diseases that are characterized by altered production and functionality of blood cells. Both can lead to cytopenias, increasing the risk of oral infections, bleeding, and delayed wound healing following dental procedures.

### General Classification

#### 1. *Myelodysplastic Syndromes (MDS):*

- Characterized by ineffective hematopoiesis and abnormal cell maturation

- Lead to multilineage cytopenias (anemia, neutropenia, thrombocytopenia)
- May evolve into acute myeloid leukemia (AML)

#### 2. *Chronic Myeloproliferative Neoplasms (MPNs):*

- Characterized by overproduction of one or more blood cell lines

Examples include:

- Polycythemia vera (erythrocytosis)
- Essential thrombocythemia (elevated platelets)
- Primary myelofibrosis
- Chronic myeloid leukemia (CML)

### Laboratory Tests Recommended by the Dentist

- Complete blood count (CBC) with differential
- PT, aPTT, fibrinogen
- Platelet count
- Recent bone marrow reports if available

### Critical values for dental planning

- Platelets  $<75,000/\text{mm}^3$ : contraindication for outpatient oral surgery
- Neutrophils  $<1,000/\text{mm}^3$ : high risk of infection
- Hemoglobin  $<8 \text{ g/dL}$ : caution due to poor healing and oxygenation

### Common Oral Manifestations

- Mucosal pallor • Spontaneous gingival bleeding or petechial • Oral ulcers, delayed healing • Opportunistic infections: candidiasis, herpes simplex • Gingivitis or periodontitis unresponsive to standard care

## Recommended Dental Management

### 1. Pretreatment Evaluation:

- Thorough medical history and confirmed hematologic diagnosis
- Review of CBC within the last 7 days
- Direct communication with the treating hematologist

### 2. Non-Invasive Procedures:

- Permissible if the patient is clinically stable
- Emphasize plaque control and infection prevention
- Consider antibiotic prophylaxis in cases of moderate to severe neutropenia

### 3. Invasive Procedures (extractions, periodontal surgery):

Perform only if:

- Platelet count  $>75,000/\text{mm}^3$
- Absolute neutrophil count  $>1,000/\text{mm}^3$
- Hematologist has authorized the procedure
- Apply firm sutures, prolonged local pressure, and topical tranexamic acid
- Avoid traumatic techniques
- In high-risk cases, consider hospital-based surgical setting

### 4. Local Anesthesia:

- Infiltrative anesthesia is generally safe in compensated patients
- Avoid deep nerve blocks in thrombocytopenic patients without hematology clearance

## Referral to Hematologist

All patients diagnosed with MDS or MPN must be referred to their hematologist prior to any surgical dental procedure. The hematologist will determine:

- The need for platelet transfusion
- Use of growth factors or supportive therapies
- Adjustment of immunosuppressive or cytotoxic regimens
- Infection prophylaxis

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