# SNS COLLEGE OF ALLIED HEALTH SCIENCES

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## COURSE NAME : ORTHOPAEDICS

## TOPIC :BLOOD TRANSFUSION IN ORTHOPAEDICS

# INTRODUCTION

Blood transfusion is a common procedure in orthopaedic surgeries, especially those involving significant blood loss

This presentation will cover the indications, methods, risks, and management of blood transfusion in orthopaedic practice.

# INDICATIONS

Significant blood loss during surgery (e.g., hip or knee replacements, spinal surgeries).

Preoperative anemia.

Postoperative blood loss or anemia.

Hemodynamic instability requiring volume replacement.

Certain trauma cases (e.g., fractures with major vascular injury).

# PREOPERATIVE CONSIDERATION

Assessment of hemoglobin and hematocrit levels.

Evaluation of bleeding risk (anticoagulant use, coagulopathies).

Consideration of autologous blood donation.

Use of erythropoietin-stimulating agents (ESA) or iron therapy if anemia is present.

Preoperative planning for major blood loss surgeries.

# TYPES OF BLOOD PRODUCTS

Packed Red Blood Cells (PRBCs): Most commonly used to treat anemia.

Platelets: Used for thrombocytopenia or platelet dysfunction.

Fresh Frozen Plasma (FFP): Used in coagulopathies or massive transfusions.

Cryoprecipitate: Used for deficiencies in clotting factors, particularly fibrinogen.

# TRANSFUSION THRESHOLDS

Hemoglobin <7 g/dL: Generally indicates the need for transfusion in stable patients.

Hemoglobin <8-10 g/dL: Consider transfusion in patients with cardiovascular disease or symptomatic anemia.

Massive Blood Loss: Transfusion protocol triggered for blood loss exceeding 30-40% of total blood volume.

# BLOOD CONSERVATION STRATEGIES

Cell Salvage: Intraoperative collection and reinfusion of blood.

Tranexamic Acid (TXA): Antifibrinolytic agent used to reduce blood loss during surgery.

Controlled Hypotension: Reducing blood pressure during surgery to minimize blood loss.

Minimally Invasive Techniques: Reducing tissue trauma and associated bleeding.

# COMPLICATIONS

Transfusion Reactions: Acute hemolytic reactions, febrile non-hemolytic reactions, allergic reactions.

Transfusion-Associated Circulatory Overload (TACO): Pulmonary edema due to volume overload.

Transfusion-Related Acute Lung Injury (TRALI): Acute respiratory distress due to immune-mediated lung injury.

Infection Transmission: HIV, hepatitis B, hepatitis C (rare due to screening).

Iron Overload: Occurs with multiple transfusions over time.

# MONITORING DURING AND AFTER TRANSFUSION

Continuous vital signs monitoring during and after transfusion.

Observation for signs of transfusion reactions (e.g., fever, chills, hypotension, rash).

Hemoglobin level checks after transfusion to assess efficacy.

Monitoring for signs of volume overload or pulmonary complications.

# MANAGEMENT

Stop the transfusion immediately if a reaction is suspected.

Administer antihistamines and corticosteroids for allergic reactions.

Provide supportive care (oxygen, fluids) for TRALI or TACO.

Hemodynamic support and emergency interventions for acute hemolytic reactions.

# THANK YOU