

PREOPERATIVE MANAGEMENT OF ANEMIA AND BLEEDING RISK ASSESSMENT IN CKD PATIENT

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PREOPERATIVE EVALUATION

- Complete blood count
- PT, PTT, INR



- Bleeding time: not a routine preoperative screening test
- some studies have found a good correlation between uremic bleeding and the bleeding time
- normal bleeding time does not predict the safety of surgical procedures, nor does a prolonged bleeding time predict excessive bleeding.



- Assessment of the bleeding time is subject to considerable variation due to technical factors in executing the test



MANAGEMENT OF ANEMIA



- preoperative hemoglobin concentration=
recommended target for patients with ESKD
(10-11.5 g/dl)



ANEMIA IN PLANNED SURGERY

- evaluation for:
 - Blood loss
 - erythropoiesis-stimulating agent (ESA) resistance
 - Iron studies
 - Aluminium toxicity
- Treatment:
 - Preoperativ adjustment of ESAs
 - Treatment of iron deficiency



POSTOPERATIVE PERIOD

- Postoperative blood transfusion:
 - patients awaiting kidney transplant : limit the number of blood transfusions
- resistant to erythropoiesis-stimulating agents (ESAs)
 - Etiology:
 - increased inflammation
 - elevated hepcidin levels
 - Treatment:
 - increasing the dose of the ESA



BLEEDING RISK ASSESSMENT



- ESRD Patients are at increased risk for perioperative bleeding.
- Perioperative bleeding contributes to both mortality and morbidity. (need for blood transfusion, reoperation and eligible risk for sensitization in transplantation candidate)



- Etiology
 - retention of uremic toxins: cause platelet dysfunction results from defects in activation, aggregation, and adhesion
 - Anemia: laminar platelet flow is disrupted
 - excess parathyroid hormone
 - Residual heparin used during recent hemodialysis
 - chronic administration of aspirin



- Risk factor:
 - history of excessive bleeding from the hemodialysis access site
 - not optimally dialyzed at the time of surgery



1. Prevention of bleeding:

1. Raising the hematocrit to an appropriate level
2. Desmopressin : (used with caution or avoided in patients with ESRD because of fluid retention and increase BP risk)
 1. Dose:
 1. IV: 0.3 mcg/kg (in 50 mL of saline over 15 to 30 minutes)
 2. Subcutaneous: at a dose of 0.3 mcg/kg
3. Erythropoiesis stimulating agents: reduce bleeding time and enhance platelet aggregation independent of anemia treatment



4) adequately Dialysis before surgery

dialysis on day of surgery:

- 1) minimize or avoid use of heparin (using saline flushes)
- 2) If heparin is administered: wait for the coagulation parameters to normalize prior to beginning surgery if feasible (typically within four hours of heparin termination)



- 5) knowledge of increased bleeding risk in maintenance dialysis patients by the surgical team
 - 1) selection of surgical approach
 - 2) placement of drains
 - 3) more vigilant postoperative monitoring



- 6) patients on anticoagulation therapy: temporary interruption of the anticoagulant
 - 1) Aspirin: discontinued 6 days before surgery
 - 2) Clopidogrel: discontinued 7 days before surgery
 - 3) intravenous heparin: discontinued 4 hours before surgery



○ treatment of bleeding:

- IV desmopressin (dDAVP) 0.3 mcg/kg
- administer platelets (one apheresis unit or six units of pooled platelets) even in the absence of thrombocytopenia



