Implementation of DVT Prophylaxis

On admission to ICU

- All patients should be assessed for their risk of venous thromboembolism (VTE)
- Start them on either mechanical prophylaxis or pharmacological prophylaxis or a combination if not contraindicated

ABSOLUTE RISK FOR VTE

Patient category	Recommendation
Low risk eg. medical patients, immobilization, use of pharmacologic paralysis or sedation, heart failure	Mechanical prophylaxis
Moderate risk eg. general surgery, major gynecologic surgery, major urologic surgery, sepsis, vasopressor use, active medical condition	LMWH or LDUH S/C Heparin 5,000 units 12 hourly in combination with mechanical prophylaxis
High risk eg. stroke, neurosurgery, previous VTE	LMWH or LDUH S/C Heparin 5,000 units 8 hourly in combination with mechanical prophylaxis
Highest risk eg. spinal cord injury, major trauma hip/knee arthroplasty, hip fracture surgery	LMWH in combination with mechanical prophylaxis

Mechanical prophylaxis methods

- graded compression elastic stockings
- thigh-length antiembolism stockings
- intermittent pneumatic compression

Pharmacological modalities

1. Low dose unfractionated heparin (LDUH) S/C heparin 5,000 units 8 hourly (high risk) or 12 hourly (moderate risk)
2. Low molecular weight heparin (LMWH) e.g. S/C enoxaparin 40mg daily when creatinine clearance > 30ml/min or 30mg daily when creatinine clearance < 30ml/min

Withhold heparin when ……..

- platelet count decreases 30 to 50% of initial count
- platelet count is less than 100,000 /mL of blood
- The platelet count has to be done daily

Withhold heparin when ……..

- INR > 1.5
- aPTT ratio > 1.5
- Patient has clinical signs of bleeding
- Patient is on renal replacement therapy

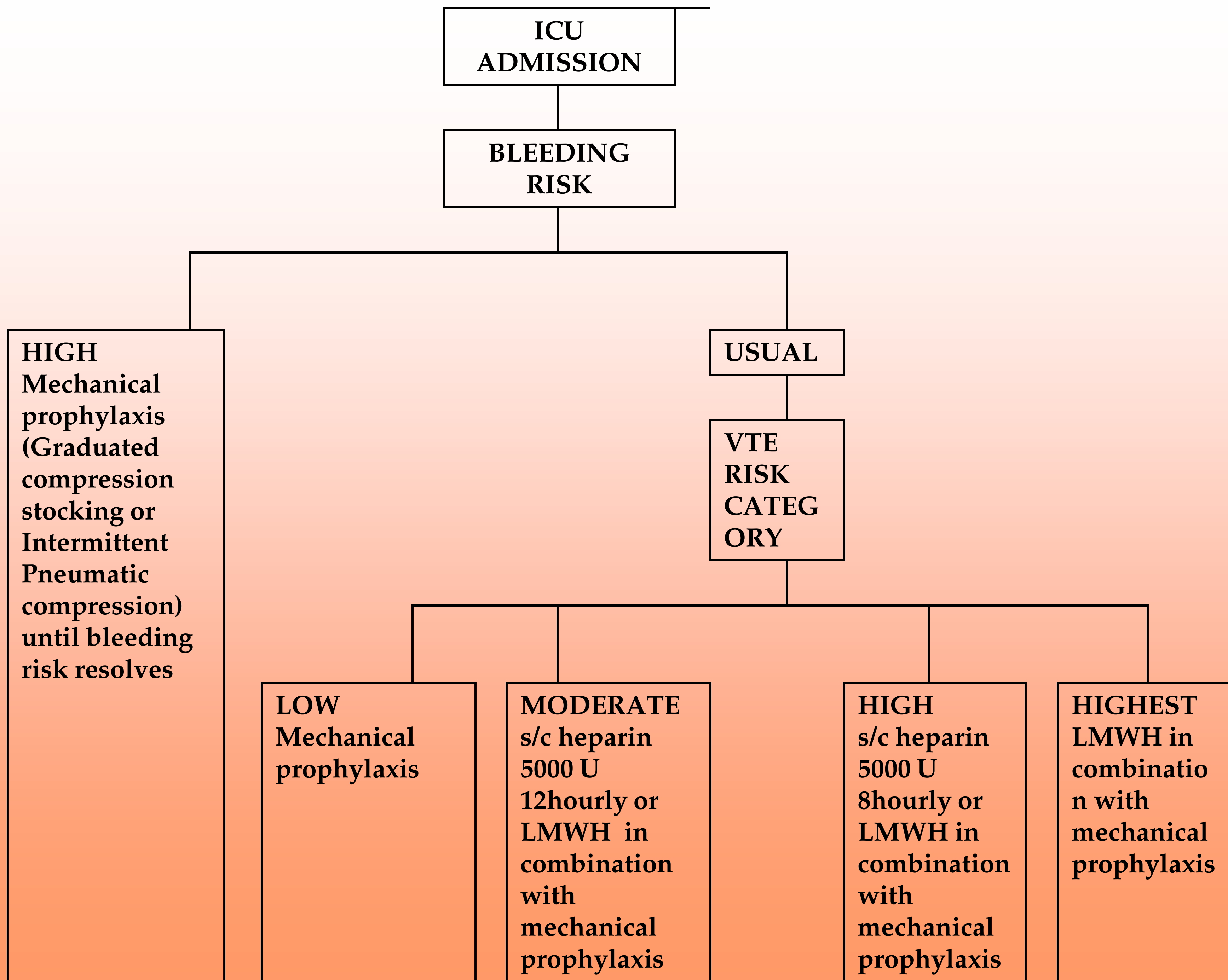
Neurosurgical patients

- Use mechanical prophylaxis methods e.g. graded compression elastic stockings, thigh-length antiembolism stockings or intermittent pneumatic compression
- Start LMWH or s/c heparin after 72 hours of hospital admission or craniotomy

Points to note

- Do not stop heparin if patients are scheduled for procedures or surgery unless there is a particularly high bleeding risk
- The insertion and removal of epidural catheters should coincide with the nadir of the anticoagulant effect. The last dose of LMWH should be 12 hours prior to removal of catheter and can be restarted 2 hours later

ALGORITHM FOR VTE PROPHYLAXIS IN ICU


ICU ADMISSION
BLEEDING RISK
HIGH Mechanical prophylaxis (Graduated compression stocking or Intermittent Pneumatic compression) until bleeding risk resolves
USUAL
VTE RISK CATEG ORY
LOW Mechanical prophylaxis
MODERATE s/c heparin 5000 U 12hourly or LMWH in combination with mechanical prophylaxis
HIGH s/c heparin 5000 U 8hourly or LMWH in combination with mechanical prophylaxis
HIGHEST LMWH in combinatio n with mechanical prophylaxis

Notes

- Withhold heparin when platelet count decreases 30 to 50% from the initial count or when the platelet count is less than 100,000 /mL or when INR > 1.5 or when aPTT ratio >1.5 or when there is clinical bleeding or when patient is on renal replacement therapy
- Start heparin only after 72 hours of hospital admission or craniotomy in all neurosurgical patients
- Continue heparin for procedures or surgery unless there is a particularly high bleeding risk
- Remember to time the insertion and removal of epidural catheters with the dose of heparin

Recommendations to improve compliance of DVT prophylaxis

- Include DVT prophylaxis as part of the ICU order on admission in the drug chart
- Include DVT prophylaxis as an item for discussion on daily ward rounds
- Empower nurses to remind doctors to prescribe DVT prophylaxis if the drug had not been prescribed
- Empower pharmacy to review orders for patients in the ICU to ensure that DVT prophylaxis has been prescribed and carried out by nurses
- Post compliance with the intervention in a prominent place in your ICU to encourage change and motivate staff.