INDICATIONS FOR THROMBO-PROPHYLAXIS AND WHEN TO STOP ANTICOAGULATION BEFORE ELECTIVE SURGERY

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INTRODUCTION

- Preventable death
- Cause of morbidity and mortality
- Risk factors
- Pulmonary embolism (PE) is the commonest preventable cause of death
- Preventing venous thromboembolism (VTE)
- Various thromboprophylactic modalities

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REFERENCES:

- Jacobson BF, Louw S, Mer M, *et al*. Venous thromboembolism – prophylactic and therapeutic practice guideline. *S Afr Med J* 2009; 99: 467-473.

- Venous thromboembolism: reducing the risk for patients in hospital Clinical guideline Published: 27 January 2010 nice.org.uk/guidance/cg92

- Venous Thromboembolism Prophylaxis– Adult– Inpatient/Ambulatory– Clinical Practice, Jennifer Lai, Anne Rose, PharmD

- Executive Summary : Antithrombotic, http://chestjournal.chestpubs.org/content/141/2_suppl/7S.full.html

RISK **BENEFIT**

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Patient information	DVT prevalence %
Internal medicine	10 - 20
General surgery	15 - 40
Major gynaecological surgery	15 - 40
Major urological surgery	15 - 40
Neurosurgery	15 - 40
Stroke	15 - 40
Hip and knee replacement surgery	40 - 60
Hip fractures	40 - 60
Polytrauma	40 - 80
Spinal cord injury	60 - 80
Critical care	10 - 80

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REDUCING RISK OF VTE

Be Aware!!!

Pre-op Intra-op Post-op

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PHARMACOLOGICAL

- Aspirin
- LMWH
- LDUFH
- Fondaparinux
- Warfarin

ASPIRIN

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LMWH

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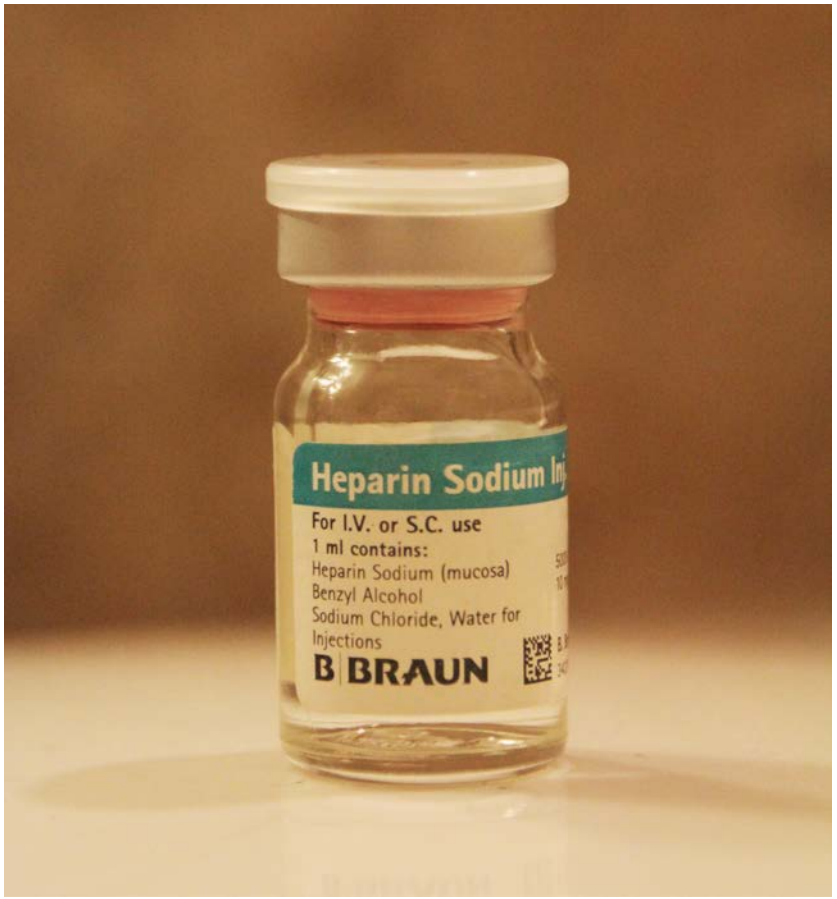
LDUFH



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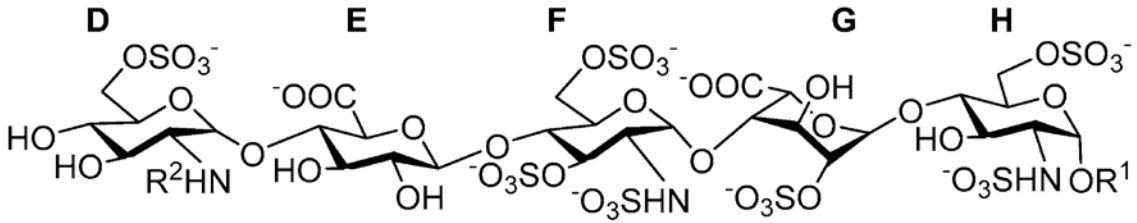
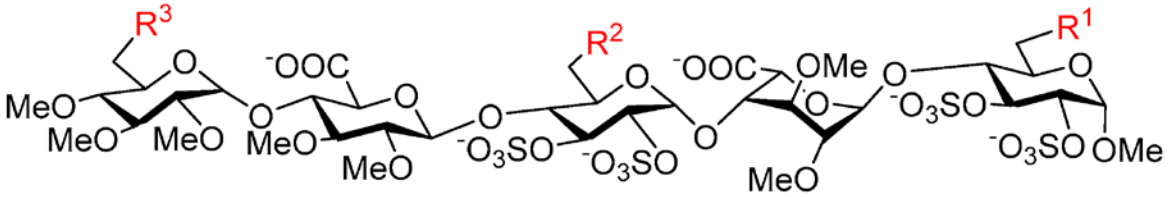
FONDAPARINUX



1 R^1 = H, R^2 = Ac (active pentasaccharide)

2 R^1 = Me, R^2 = SO_3^- (fondaparinux, Arixtra)



3 R^1 = R^2 = R^3 = OSO_3^- (idraparinux)

4 R^1 = R^2 = $CH_2SO_3^-$, R^3 = OSO_3^-

5 R^1 = R^2 = R^3 = $CH_2SO_3^-$

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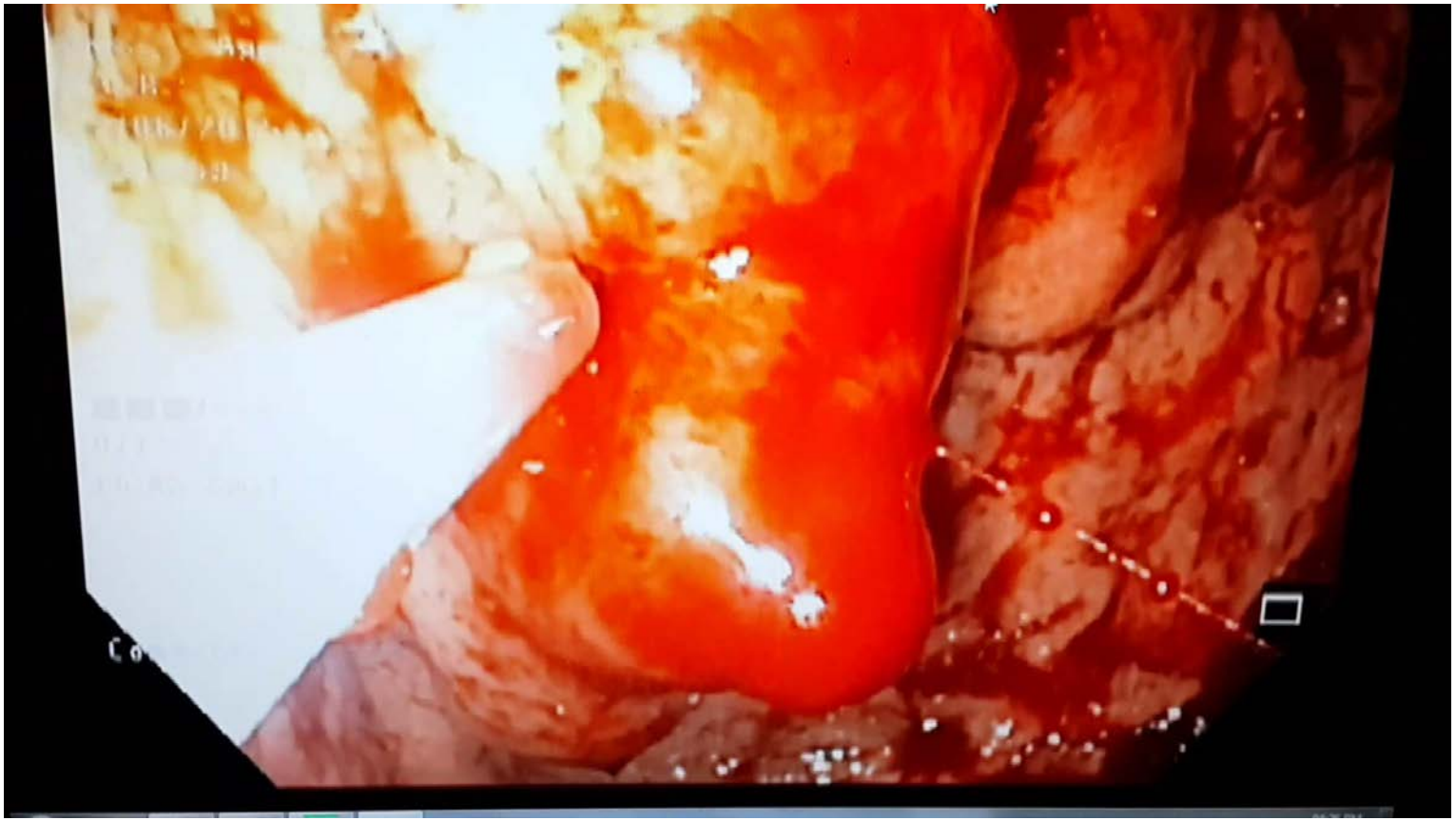
WARFARIN

MECHANICAL

- Early ambulation
- Intermittent pneumatic compression stockings (IPC)
- GCS
- Mechanical foot compression
- IVC filters

YES DVT

NO PE



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EARLY AMBULATION

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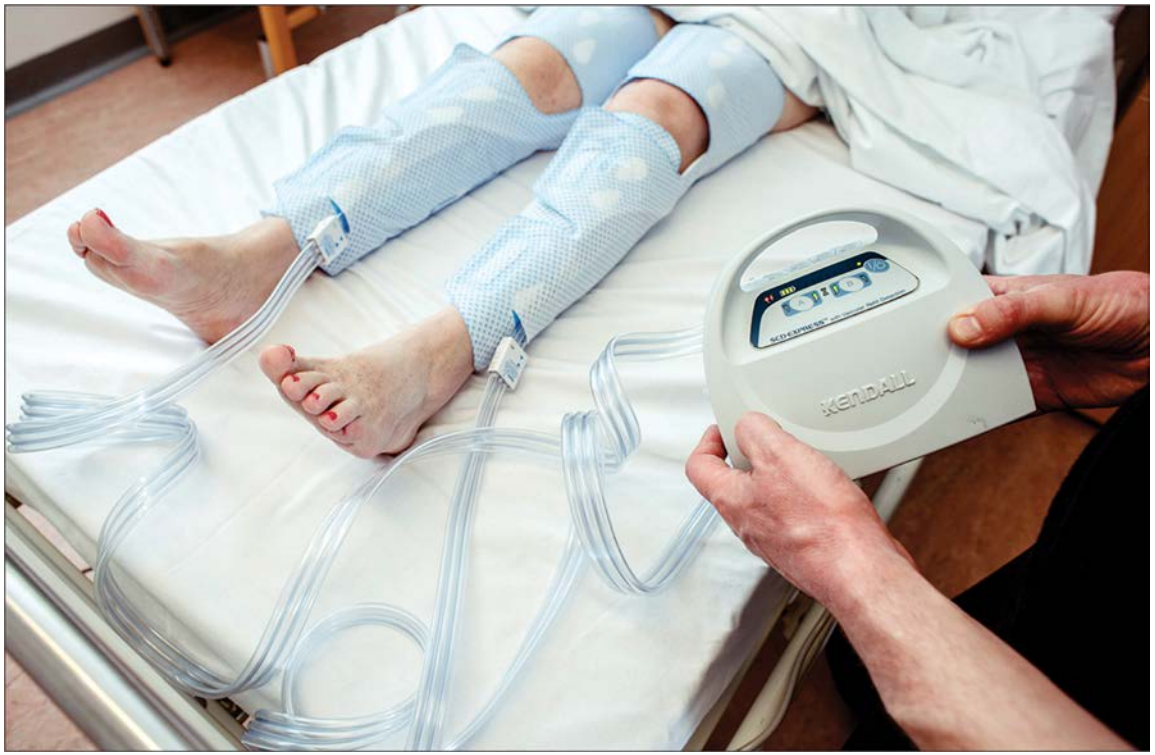
IPC



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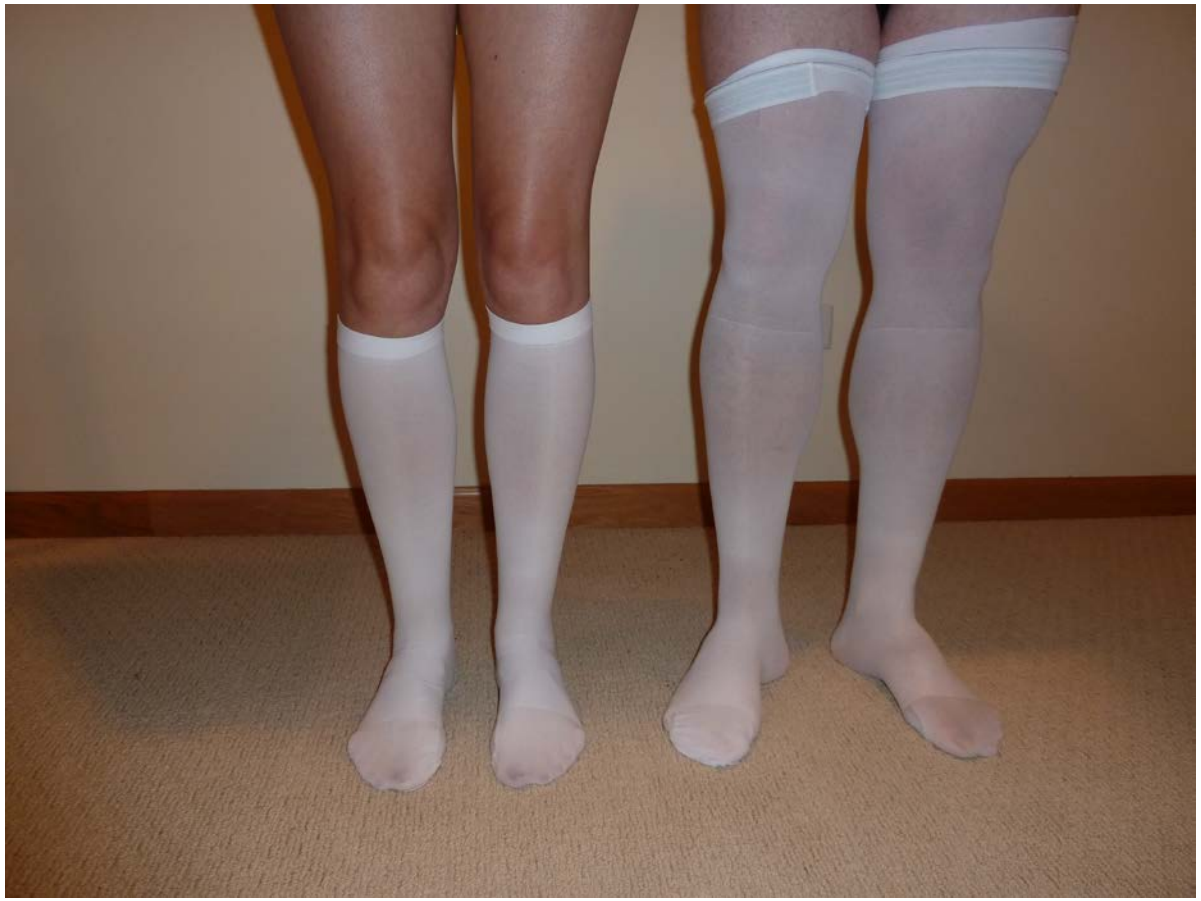
GCS



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MECHANICAL FOOT COMPRESSION

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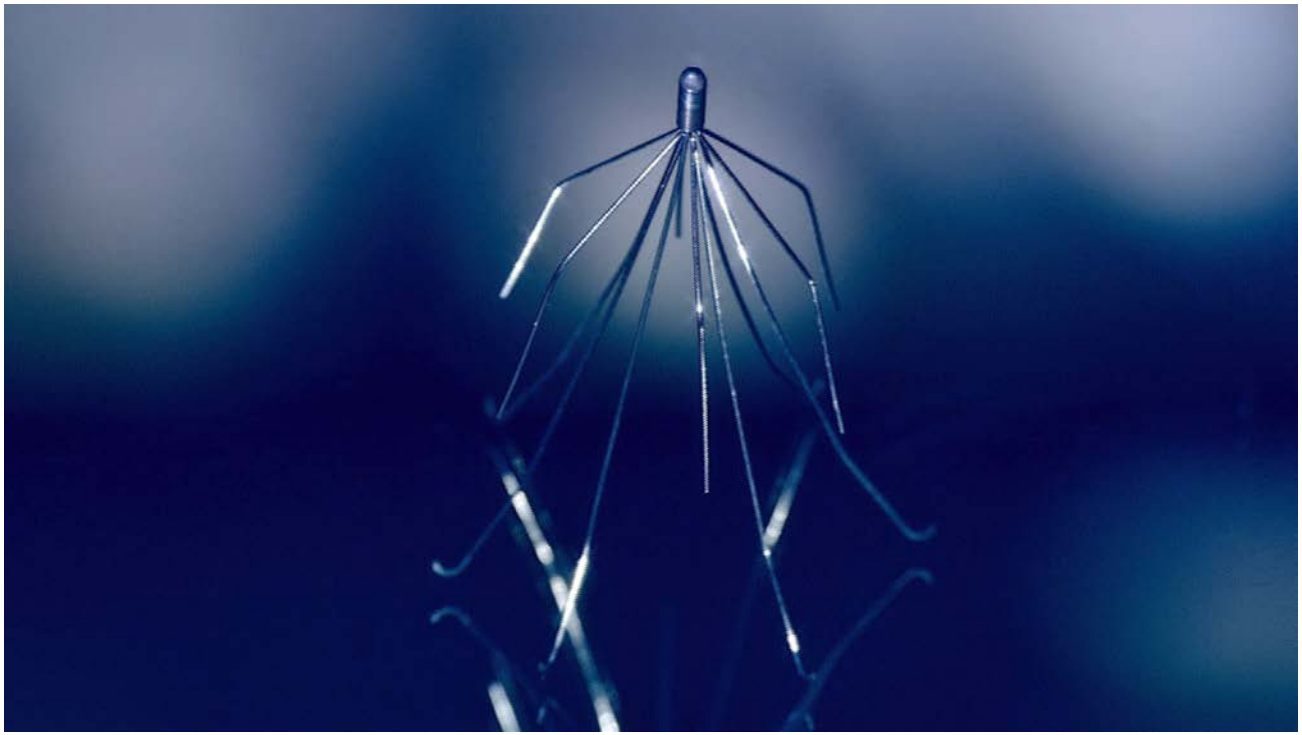
IVC FILTERS



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RISK

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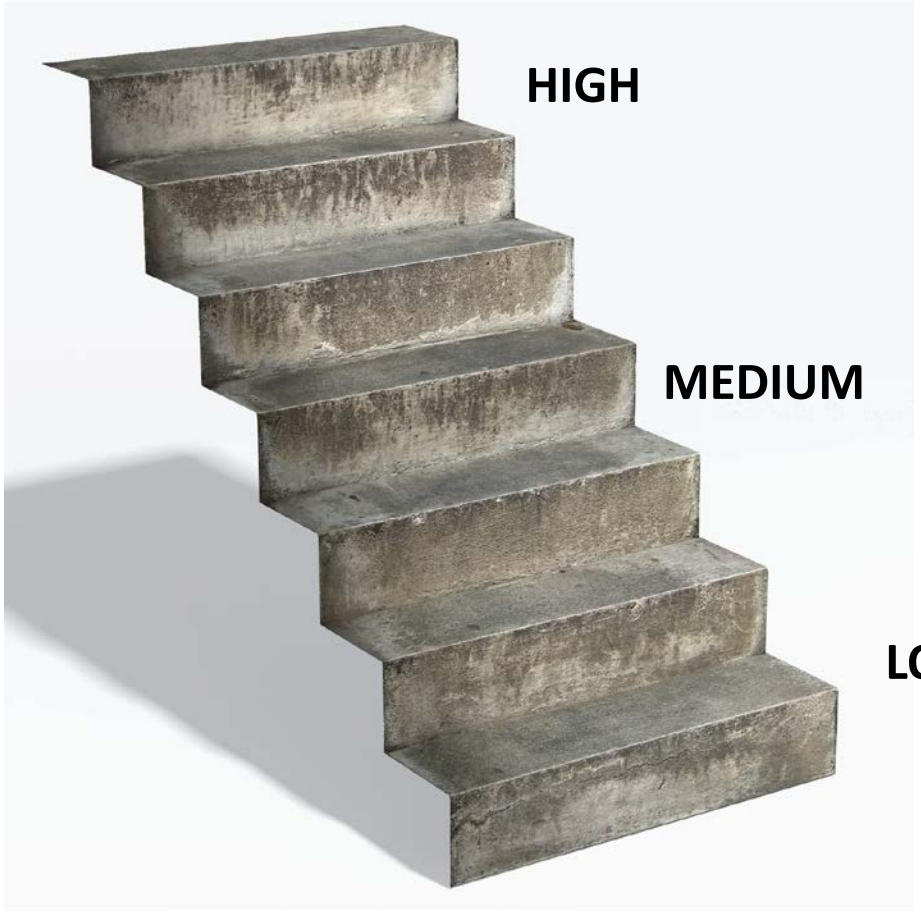

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1 Point	2 Points	3 Points	5 Points
Age 41-60	Age 61-74	Age ≥ 75	Acute spinal cord injury (< 1 mo)
Acute MI (<1 mo)	Central venous access	Established thrombophilia	Elective lower extremity arthroplasty
BMI > 25	Immobile > 72 hrs	HIT	Hip, pelvis, or leg fracture (< 1 mo)
CHF exacerbation (<1 mo)	Leg plaster cast or brace	Hx of VTE	Stroke (< 1 mo)
Hx of inflammatory bowel disease	Malignancy	Family hx VTE (1 degree relative)	
Procedure with local anesthesia	Surgery- arthroscopic		
Swollen legs or	Varicose veins	Surgery > 45 mins	
Sepsis (< 1 mo)			
Serious lung dx ex. Pneumonia (<1 mo)			
1 point (For Women Only)			
Oral contraceptives or HRT			
Pregnancy or postpartum (< 1 month)			
Hx of unexplained stillborn infant, spontaneous abortion (≥3), premature birth with toxemia or growth restricted infant			

Points	Risk	Recommendation
0	Very Low VTE Risk	Early and frequent ambulation
1-2	Low VTE Risk	Mechanical Prophylaxis
3-4	Moderate VTE Risk and Low Bleed Risk	Pharmacologic Prophylaxis
> 5	High VTE Risk and Low Bleed Risk	Mechanical AND Pharmacologic Prophylaxis
> 2	High Bleed Risk	Mechanical Prophylaxis

Surgical Patients	Enoxaparin 40 mg SQ every 24 hours (Class I, Level B) OR Heparin 5000 units SQ every 8 to 12 hours (Class I, Level B)
Renal impairment (CrCl < 30 mL/min)* *Not on renal replacement therapy	Enoxaparin 30 mg SQ every 24 hours (Class IIa, Level B) OR Heparin 5000 units SQ every 8 to 12 hours (Class I, Level B)
Bariatric Surgery	Enoxaparin 40 mg SQ every 12 hours (Class IIa, Level B)
Major Trauma	Enoxaparin 30 mg SQ every 12 hours (Class IIa, Level B)
Abdominal/Pelvic Surgery for Cancer	Enoxaparin 40 mg SQ every 24 hours (Class I, Level B)

PADUA

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Risk Factor	Points	
Critically Ill	4	
Inflammatory Bowel Disease	4	
Active Cancer*	3	
Previous VTE	3	
Reduced Mobility**	3	
Thrombophilic Condition***	3	
Recent (< 1month) Trauma/Surgery	2	
Age ≥ 70 years	1	
Heart or Respiratory Failure	1	
Acute Myocardial Infarction or Ischemic Stroke	1	
Acute Infection or Rheumatologic Disorder	1	
BMI ≥ 30	1	
Ongoing Hormonal Treatment	1	

Assessment Score	Risk	Recommendations
< 4	Low VTE Risk	VTE prophylaxis not needed
> 4	High VTE Risk and Low Bleed Risk	Pharmacologic Prophylaxis
	High VTE Risk and High Bleed Risk	Mechanical Prophylaxis

BLEEDING

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Medical patients	Surgical patients
Active gastroduodenal ulcer	Active bleeding or previous major bleeding
Bleeding in the 3 months prior to admission	Renal failure (CrCl < 30 mL/min)
Platelet count < 50 x109/L	Hepatic failure (INR > 1.5 without anticoagulants)
	Thrombocytopenia
	Acute stroke
	Uncontrolled systemic hypertension
	Concomitant use of anticoagulants, antiplatelets or thrombolytics

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WARFARIN THERAPY

- Stop Warfarin 5/7 pre-op
- Restart Warfarin 12-24 hrs post-op, if there is adequate haemostasis
- Mechanical valves/AF
  - High risk for VTE
- Bridging anticoagulation
  - Low risk for VTE
- No bridging anticoagulation
  - Intermediate risk
- Mx on case by case basis

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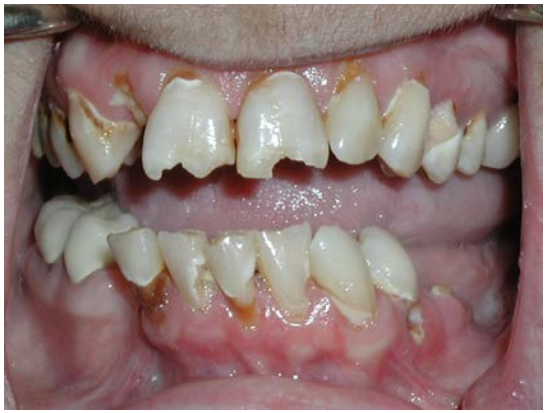
MINOR DENTAL PROCEDURES

- Continue with Warfarin with coadministration of prohaemostatic agent OR
- Stop Warfarin 2-3 days pre-op



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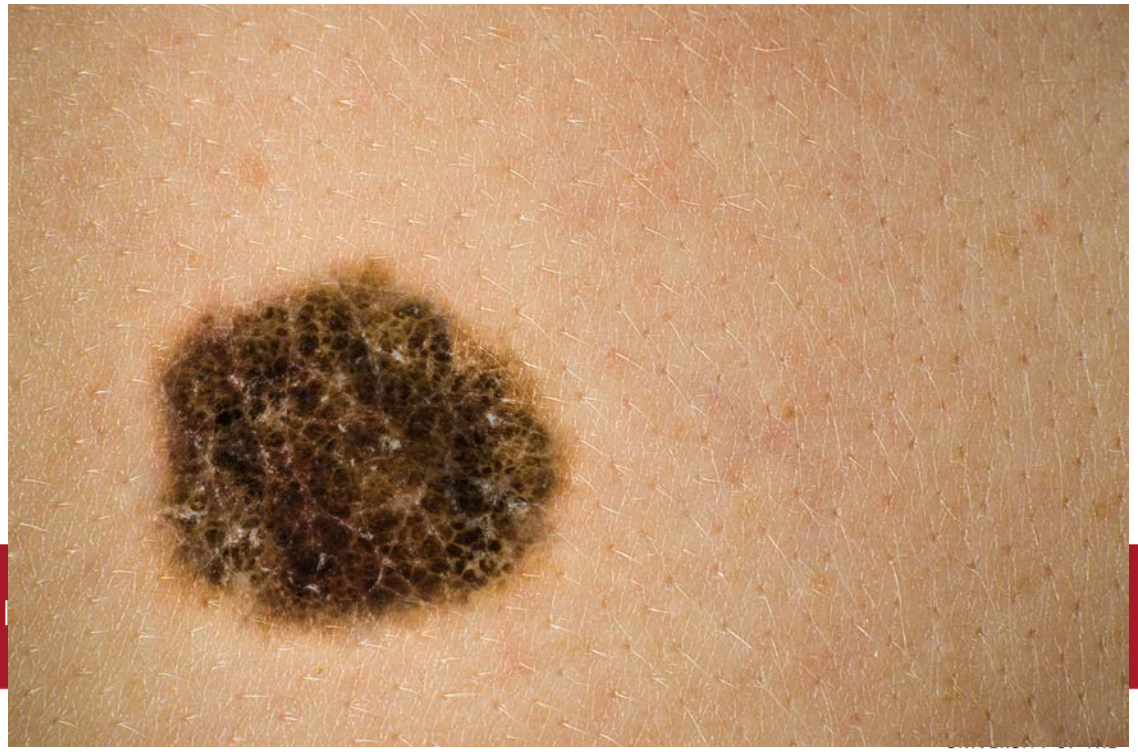
DERMATOLOGICAL PROCEDURES

- Continue with Warfarin and optimize local haemostasis rather than interrupting treatment



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UFH/LMWH

- Bridging anticoagulation
  - UFH
- Stop 4-6 hrs pre-op
  - LMWH
- 24 hrs pre-op (therapeutic dose)
- Resume 12-24 hrs post-op
- High risk of post-op bleeding
- Resume 48-72 hrs post-op

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ASPIRIN THERAPY

- High risk cardiovascular condition
  - Continue with aspirin around time of surgery, rather than stopping 7 – 10 days pre-op
- Low risk cardiovascular condition
  - Stop aspirin 7 – 10 days pre-op
- Requiring CABG
  - Continue aspirin
- Coronary artery stents (on dual antiPLT Tx)
  - Defer surgery for at least 6/52 – bare metal stent
  - Defer surgery for at least 6/12 – drug-eluting stent

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TIMING

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TIMING OF PROPHYLAXIS

- Benefits of prophylactic anticoagulation pre-operatively.
- Prophylaxis postoperatively is adequate
- Adjustment of the dose in patients with renal failure is mandatory
- The first dose of fondaparinux should always be given a minimum of 6 - 8 hours postoperatively
- The new oral anticoagulants (NOACs) must only be given postoperatively, dabigatran 4 hours and rivaroxaban 6 hours after surgery.
- Neuroaxial anaesthesia initiated a minimum of 12 hours postoperatively.

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SPECIAL POPULATIONS

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ACUTE KIDNEY INJURY (AKI) OR CHRONIC KIDNEY DISEASE (CKD)

- UFH is the preferred agent for patients who are on renal replacement therapy
- Enoxaparin 30 mg every 24 hours may be considered
- Consider monitoring anti-Xa level after 7-10 doses to evaluate for accumulation
- Goal anti-Xa 0.2-0.4 units/mL

EXTREME OBESITY

- Optimal thromboprophylaxis has not been established
- Preferred method for VTE prophylaxis is with LMWH
- Enoxaparin 40 mg every 12 hours
- Routine anti-Xa monitoring is not recommended
- Consider monitoring anti-Xa level after 7-10 doses to evaluate for accumulation (goal 0.2 – 0.4 units/mL)
- Prophylactic UFH has not been adequately studied in morbidly obese patients
- May consider heparin 7,500 units every 8 hours

EXTENDED VTE

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BARIATRIC SURGERY

- Patients with high VTE risk, low bleed risk and BMI > 55 kg/m2
- Enoxaparin 40 mg SQ every 12 hours for 10 days

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ABDOMINAL OR PELVIC SURGERY FOR CANCER

- Patients with a cancer diagnosis who received a traditional laparotomy or vulvectomy and is either > 60 years or < 60 years old with a history of VTE
- Enoxaparin 40 mg SQ every 24 hours for 28 days
- If patient refuses 28 days of prophylactic therapy then enoxaparin or UFH may be considered for 14 days

ORTHOPAEDIC SURGERY FOR VTE PROPHYLAXIS

- Total hip arthroplasty: 10-14 days
- Total knee arthroplasty: 10-14 days
- Hip fracture surgery: 10-14 days
- For major orthopaedic surgery 35 days

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PATIENTS WITH MAJOR TRAUMA: TRAUMATIC BRAIN INJURY, ACUTE SPINAL INJURY, AND TRAUMATIC SPINE INJURY

- For major trauma patients, it is suggested you use LDUH, LMWH, or mechanical prophylaxis, preferably with IPC, over no prophylaxis; if no contraindication exists.

SPINAL & EPIDURAL

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SPINAL AND EPIDURAL ANAESTHESIA

- Neurological monitoring is mandatory
- Extreme caution should be exercised in patients on other haemostatically active agents

SPINAL AND EPIDURAL ANAESTHESIA

- LMWH:
  - Catheter should not be placed or removed within 12 hours following a
  - LMWH should not be commenced less than 2 hours after insertion or removal
  - LMWH should be delayed for at least 24 hours if there is blood in the needle or neuroaxial catheter during needle insertion.

SPINAL AND EPIDURAL ANAESTHESIA

- Fondaparinux:
  - Catheter removal should not take place earlier than 36 hours after cessation of fondaparinux.

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SPINAL AND EPIDURAL ANAESTHESIA

- NOACs, rivaroxaban and dabigatran:
  - Epidural catheter removal: 22 - 26 hours after last administration of a NOAC.

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DISCHARGE

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PATIENT INFORMATION AND PLANNING FOR DISCHARGE

- Offer patients and/or their families or carers verbal and written information
- The risks and possible consequences of VTE
- The importance of VTE prophylaxis
- Its possible side effects the correct use of VTE prophylaxis (for example, anti-embolism stockings, foot impulse or intermittent pneumatic compression devices)
- How patients can reduce their risk of VTE

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INFORMATION

1. *Indication for therapy*
2. *Effect in* preventing clotting
3. *Control of therapy*
4. *Duration of therapy*
5. *Possible complications*
6. *Interaction with other therapies*
7. *Toxicity* keep out of reach of children.

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CONCLUSION

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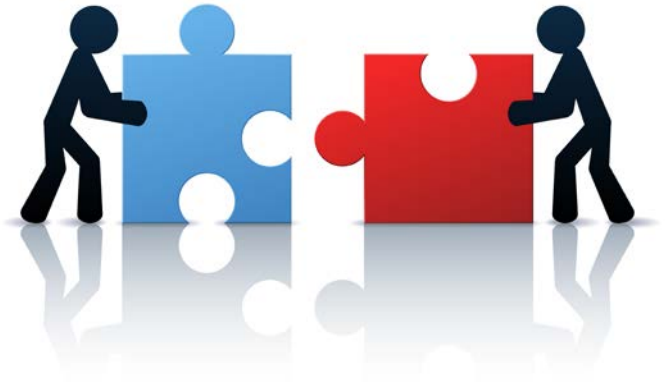
CONCLUSION

- All decisions must include a risk benefit evaluation.
- No ‘one solution fits all’ is acceptable.
- Methods, timing etc. for every patient must be clearly understood.



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REFRENCES:

- Jacobson BF, Louw S, Mer M, *et al*. Venous thromboembolism – prophylactic and therapeutic practice guideline. *S Afr Med J* 2009; 99: 467-473.
-
- Venous thromboembolism: reducing the risk for patients in hospital Clinical guideline Published: 27 January 2010 nice.org.uk/guidance/cg92
-
- Venous Thromboembolism Prophylaxis– Adult– Inpatient/Ambulatory– Clinical Practice, Jennifer Lai, Anne Rose, PharmD
-
- Executive Summary : Antithrombotic, http://chestjournal.chestpubs.org/content/141/2_suppl/7S.full.html

Thank You
Dankie
Enkosi

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