PREGNANCY

C D C

Pregnant women:

- **should be regularly assessed for VTE risk factors**
- **with a personal or family history of VTE should be offered screening for thrombophilias**
- **with VTE events during previous pregnancy or COC use, previous idiopathic VTE, or certain thrombophilias should start antenatal prophylaxis as soon as possible**

C

There is no contraindication to breast feeding when the mother is being treated with heparins, warfarin or other coumarins.

N.B. Refer pregnant women on long term anticoagulants or with a heritable thrombophilic defect to an experienced unit.

HORMONE USE IN WOMEN

Oral Contraception and Hormone Therapies

C

- **Women starting COC, higher dose progestogens, oral HRT or raloxifene should be advised of the small absolute increased risk of VTE**
- **A personal history of VTE is a contraindication to use of COC, oral HRT and raloxifene**
- **In current or recent users of COC, higher dose progestogens, oral HRT or raloxifene, who are undergoing surgery, medical practitioners should:**
  - **discuss the balance of risks and benefits of stopping these hormones prior to elective surgery**
  - **arrange adequate alternative contraception if COC is to be discontinued**
  - **consider specific antithrombotic prophylaxis according to overall risk factor profile**
  - **give VTE prophylaxis routinely in emergency surgery**

SIGN ONLINE

www.sign.ac.uk

Details of the evidence supporting guideline recommendations and their application in practice can be found in the full guideline, available on the SIGN website: **www.sign.ac.uk.**

This guideline was issued in 2002 and will be considered for review in 2006.

For more information about the SIGN programme, contact the SIGN Executive or see the website.

LONG DISTANCE TRAVEL

D

To minimise the risk of thrombosis when travelling long distances *(e.g. over 4 hours)***, especially by air, all travellers should be advised to:**

- **ensure good hydration**
- **restrict alcohol and coffee intake**
- **regularly carry out simple leg exercises and take occasional walks during travel**

D

In patients at high risk of thrombosis *(e.g. previous VTE, known thrombophilia, recent major trauma, surgery, immobilising medical illness, pregnancy)***, the following prophylactic methods should be considered:**

- **GECS**
- **a single dose of aspirin** *(150mg)* **before travel (± GECS)**
- **a single injection of a LMWH 2-4 hours before travel in prophylactic dose (± GECS)**
- **patients already receiving warfarin should continue to take it (± GECS)**

D

The risks of bleeding should be considered *(e.g. increased risk of major bleed with aspirin or heparins)* **and the balance of risk and benefits should be discussed with the individual patient.**

The Scottish Intercollegiate Guidelines Network (SIGN) supports improvement in the quality of health care for patients in Scotland by developing national clinical guidelines containing recommendations for effective practice based on current evidence.

The recommendations are graded A B C D to indicate the strength of the supporting evidence.

Good practice points ☑ are provided where the guideline development development group wish to highlight specific aspects of accepted clinical practice.

Prophylaxis of Venous Thromboembolism

HOSPITAL PATIENTS

D

Assess all patients admitted to hospital for:

- **major trauma** *(e.g. immobilising fracture)*
- **major surgery** *(e.g. duration >30mins)*
- **acute major medical illness** *(e.g. likely to involve >3 days bed rest)*

INDIVIDUAL RISK FACTORS

D

Assessment of individual risk factors should include:

- *age*
- *obesity*
- *varicose veins*
- *previous VTE*
- *thrombophilia*
- *cancer*
- *heart failure*
- *recent MI or stroke*
- *oestrogen therapy*
- *high dose progestogen*
- *tamoxifen*
- *raloxifene*
- *pregnancy*
- *puerperium*
- *immobility*
- *inflammatory bowel disease*
- *nephrotic syndrome*

EFFECTIVE PROPHYLAXIS

A

- **Subcutaneous low dose UFH** *(5000IU 8-12 hourly or 7500IU 12 hourly for 5 days or until discharge) OR* **LMWH** *(dosage from manufacturer's recommendations)*
- **Aspirin 150mg/day started preoperatively and continued for 35 days**
- **Graduated elastic compression stockings** (GECS) **(± pharmacological prophylaxis or IPC)**
- **Intermittent pneumatic compression** (IPC)
- **mechanical foot pumps**

See guideline for cautions and contraindications

PRECAUTIONS PRIOR TO INSTITUTING SPINAL AND EPIDURAL BLOCKS

D

- **Aspirin** – proceed normally, remembering interactions
- **UFH** – proceed normally & exercise caution *OR* administer 4-6 hours before block *OR* delay first dose until after block or after surgery
- **LMWH** – administer 10-12 hours before block

MEDICAL PATIENTS

ACUTE MYOCARDIAL INFARCTION

A — **All patients with clinically suspected evolving acute MI should be**
- **given aspirin, if not already receiving it** *(initially 150-300mg)*
- **considered for thrombolytic therapy**

A — **Heparins should not be used routinely in addition to aspirin but reserved for patients at increased thromboembolic risk** *(and for certain patients undergoing thrombolysis)*

B — **Compression stockings may be considered in patients who are at increased risk of VTE, especially when heparin prophylaxis is contraindicated**

ACUTE STROKE

C — **Compression stockings** *(high risk patients)*

A — **Early treatment with aspirin** *(initially 150-300 mg/day starting as soon as intracranial haemorrhage is excluded)*

A — **Subcutaneous low dose UFH or LMWH** *(patients at high risk of VTE & low risk of haemorrhagic complications)*

GENERAL MEDICAL PATIENTS

A — **Subcutaneous low dose UFH or LMWH** *(immobilised patients, especially those with heart failure, respiratory failure, infections, diabetic coma, cancer, IBD, nephrotic syndrome, leg paralysis e.g. Guillain-Barre Syndrome or in intensive care)*

when these agents are contraindicated substitute with:

C — **GECS**

CANCER PATIENTS

A
- **Subcutaneous UFH, LMWH** *OR* **GECS when immobilised in acute medical or surgical wards**
- **Minidose warfarin** *(1mg/day in patients with central venous catheters)*
- **Low-dose warfarin** *(during chemotherapy in stage IV breast cancer)*

SURGICAL PATIENTS

GENERAL & GYNAECOLOGICAL SURGERY

A
- **Subcutaneous low dose UFH or LMWH**
- **GECS can be *combined* with UFH or LMWH in patients at high risk due to the presence of multiple risk factors**

When heparins are contraindicated substitute with:
- **GECS** *OR*
- **IPC followed by above-knee GECS** *OR*
- **Aspirin** *(150 mg/day; oral, rectal or NG tube) OR*
- **Intravenous dextran 40 or 70** *(an alternative for high risk patients) OR*

C
- **Warfarin** *(e.g. in those already receiving; target INR 2.0-2.5)*

ORTHOPAEDIC SURGERY & TRAUMA

Total Hip or Knee Replacement

A
- **Mechanical prophylaxis** *(GECS ± IPC or foot pumps)*
- **Aspirin** *(150 mg orally, started before surgery and continued for 35 days)*
- **Subcutaneous low dose UFH or LMWH** *(for 7-15 days, extended to 4-5 weeks in very high risk patients)*
- **Warfarin** *(e.g. in those already receiving; target INR 2.0-3.0)*

Hip Fracture Surgery

C — **Early surgery** (within 24 hours) **where possible**

A
- **Mechanical prophylaxis** *(IPC or foot pumps)*
- **All patients should receive aspirin** *(150 mg orally, started on admission and continued for 35 days)* **± mechanical prophylaxis**
- **Subcutaneous low dose UFH** *OR* **LMWH** *(only in patients at high risk due to multiple risk factors, or contraindications to mechanical prophylaxis and/or aspirin)*

Other Trauma

A
- **LMWH for patients with spinal cord injury, major lower limb fractures or multiple trauma**
- **Mechanical prophylaxis in patients with contraindications to LMWH**

C — **Aspirin in patients in whom LMWH is contraindicated and mechanical prophylaxis is not feasible**

UROLOGICAL SURGERY

In major or open procedures:

A
- **Subcutaneous low dose UFH or LMWH**

when heparins are contraindicated substitute with:

B
- **GECS ± IPC**

B — **In patients undergoing TURP who are at high risk of VTE due to multiple risk factors, consider prophylaxis with UFH, LMWH** *OR* **GECS ± IPC**

NEUROSURGERY

A
- **GECS ± IPC**
- **LMWH can also be considered but there is an increased risk of haemorrhage**

CARDIOTHORACIC SURGERY

A
- **Subcutaneous low dose UFH or LMWH**

B
- **IPC + low dose heparin** *(cardiac surgery)*

A
- **Aspirin should be discontinued prior to elective cardiac bypass surgery because of the risks of bleeding & resumed** *(75-300mg/day)* **via nasogastric tube 6 hours following bypass grafting and continued long term**

PERIPHERAL VASCULAR SURGERY

C
- **GECS** *(patients undergoing varicose vein surgery with no additional risk factors)*
- **Subcutaneous low dose UFH or LMWH** *(patients with critical limb ischaemia, or undergoing major peripheral vascular surgery or varicose vein surgery in the presence of additional risk factors)*

A
- **Aspirin should be given or resumed** *(75-300mg/day via nasogastric tube)* **6 hours following bypass grafting and continued long term**

GLOSSARY

COC	combined oral contraceptives
DVT	deep vein thrombosis
GECS	graduated elastic compression stockings
HRT	hormone replacement therapy
IPC	intermittent pneumatic compression
LMWH	low molecular weight heparin
PE	pulmonary embolism
TURP	transurethral resection of the prostate
UFH	unfractionated heparin
VTE	venous thromboembolism