

Is Thromboprophylaxis necessary in Day Surgery and can we reduce the risks?

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Overview

- How often does Venous thromboembolism (VTE) occur after day or ambulatory surgery(AS)?
- Are some patients at higher risk of VTE?
- Can we reduce the risk of VTE ?

How often does VTE occur after day surgery in Norwich?

- All cases of hospital acquired thrombosis (HAT) presenting to Norfolk and Norwich hospital analysed over 5 year period 2009-2014
 - Patient risk factors
 - Thromboprophylaxis offered
 - Surgical procedure and length of hospital stay

Thromboprophylaxis in day surgery study group

- None if no risk factors
- Stockings if 1 or more risk factors
- *5 days heparin if personal history VTE

- * 1 year analysis showed increased risk in patients with previous history

Results

- 37 cases of HAT(thrombosis)
 - DVT 23
 - PE 14 (1 fatal)
- 57,000 ambulatory surgery procedures under GA
- Incidence HAT <7 in 10,000 day case (AS)procedures

Risk factors identified

- 0 risk factors in 5 patients
- 1-4 risk factors in 30 patients
- 5 risk factors in 2 patients
- Patients with previous history VTE had higher risk
- 9 patients had HAT after 825 varicose vein surgery procedures(GA)
- Incidence VTE after day case varicose vein surgery 1%

Conclusions of Norwich retrospective review

- VTE occurred after <7 in 10,000 (<0.1%) (GA ambulatory surgery procedures)
- VTE occurred in approx 1 in 100 (1%) patients having GA varicose vein surgery
- Patients with no identified risk factor could get VTE

Other evidence of VTE after day surgery

Duration and magnitude of the postoperative risk of venous thromboembolism in middle aged women: prospective cohort study. Sweetland S, Green J, Liu B et al. *BMJ 2009;339:b4583*

Identifying patients at high risk for venous thromboembolism requiring treatment after outpatient surgery. Pannucci C, Shanks A, Moote M et al. *Annals of Surg 2012; 255(6) 1093-9*

Duration and magnitude of the postoperative risk of venous thromboembolism in middle aged women: prospective cohort study.

Sweetland S, Green J, Liu B et al.

BMJ 2009;339:b4583

- Prospective cohort study of a million, middle aged women 1996-2001 in UK.
- Compared to not having surgery, women were 70 times more likely to be admitted with thrombosis up to 12 weeks after in-patient surgery and 10 times more likely after day case surgery

Over a 12 week period without surgery

- 1 in 6200 middle aged women in the UK will be admitted to hospital for, or die from, venous thromboembolism compared with
- 1 in 815 (0.1%) during the 12 weeks after a day case operation
- 1 in 140 (0.7%) women after an inpatient operation

Are some patients at particularly high risk?

In Norwich study patients having varicose vein surgery had a 10x greater risk VTE (1%) than all other day surgery procedures combined(<0.1%)

Identifying patients at high risk for venous thromboembolism requiring treatment after outpatient surgery

Pannucci C, Shanks A, Moote M et al.

Annals of Surg 2012. **255(6)** 1093-9.

Prospective cohort study of 259,000 day surgery or 23 hour stay patients, 2005-9, in Michigan

Used prospectively collected national 30 day outcome surgery registry data to establish VTE incidence

- Overall incidence VTE within 30 days was 0.15%
- Data included 23 hour stay patients
- High risk group(11,428 patients) had incidence of 1.18%
 - 11,106 of these had varicose vein surgery
 - 322 had other surgical procedures

Risk factors identified in US study

Age

BMI

Operative time

Type procedure

Smoking

Co morbidity

Type anaesthesia

* Previous history of VTE was not included as a risk factor

Discussion of US study

- Analysis of relation between risk factors and incidence VTE showed majority(97%) highest risk patients having vein surgery
- Incidence in this highest risk group was 1 in 84

Limitations US Study

- No indication which methods of thromboprophylaxis used in study population
- Risk factors not included
 - previous personal or family history of VTE,
 - use of oral contraceptive or hormone replacement
 - inflammatory bowel disease
- Study period only 30 days but risk continues for 90 days

Venous thromboembolism: reducing the risk

Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital

Issued: January 2010

NICE clinical guideline 92

guidance.nice.org.uk/cg92

“Our guideline covers all patients admitted to hospital and includes patients having surgery in day-case facilities. The magnitude of risk of venous thromboembolism (VTE) is dependent upon

- **Surgical factors**

- Anaesthetic and surgical time > 90 mins or 60 mins pelvis lower limb
- Expected significant reduced mobility

- **Patient factors**

Patient risk factors

- Age over 60
- BMI > 30
- Active cancer or treatment
- Personal or first degree relative with history VTE
- Use of HRT or oestrogen contraceptive
- Pregnancy or delivery within 6 weeks
- Varicose veins with phlebitis
- Lower limb immobilisation
- Significant co-morbidity, cardiac, respiratory, endocrine, acute inflammatory
- Known thrombophilia
- Dehydration
- Critical care admission

Day surgery(AS)

Offer VTE prophylaxis to patients undergoing day surgery who are assessed to be at increased risk of VTE (see section 1.1).


- Start mechanical VTE prophylaxis at admission. Choose any one of:
- anti-embolism stockings (thigh or knee length)
- foot impulse devices
- intermittent pneumatic compression devices (thigh or knee length).

Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.

- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose any one of:
- fondaparinux
- LMWH
- UFH (for patients with severe renal impairment or established renal failure).

If the patient is expected to have significantly reduced mobility after discharge, continue pharmacological VTE prophylaxis, generally for 5–7 days.

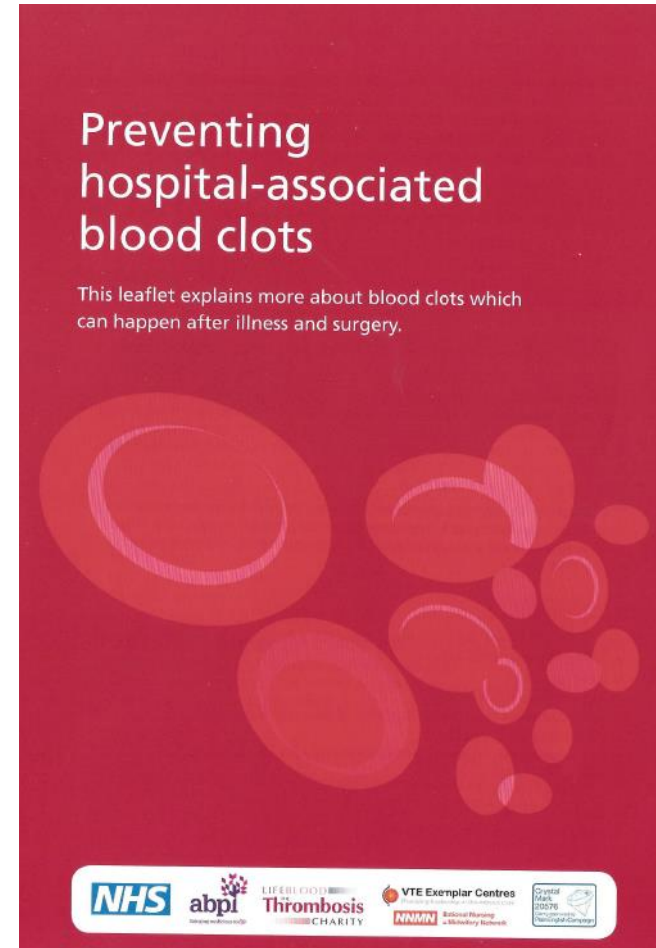
How should we manage risk

Norfolk and Norwich University Hospitals  NHS Foundation Trust			
Adult Day Case/ Overnight Prescription Chart			E
Weight (kg)	Height (cm)	Surface Area (m ²)	Name <i>Hospital No</i>
Admission Date		Ward	Date of Birth
Consultant(s)		Address	
Oral Medication in Surgical Pre Op Patients			<i>Use Label</i>
<p>Patients who are "nil-by mouth", awaiting surgery MUST receive their usual oral medication (except oral hypoglycaemics), unless the prescription has been cancelled.</p>			Allergies & Sensitivities <small>If none, state "None". Record source of information e.g. "patient", "notes" etc</small>
Non-administration of Drugs Reasons for non-administration of drugs must be recorded: 1 Nil By Mouth 5 Medical instruction 2 Off Ward 6 No by mouth in situ 3 Vomiting/Nausea 7 Contraindicated 4 Refused 8 Drug not available			Latex Allergy <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Patient <input type="checkbox"/> Medical Notes <input type="checkbox"/> GP <input type="checkbox"/> Dr <input type="checkbox"/> Nurse <input type="checkbox"/> Pharmacist Signed _____ Name _____ Date _____
Thromboprophylaxis Risk Assessment Complete for ALL ADULT PATIENTS, excluding OBSTETRIC patients. REASSESS within 24 HOURS of Admission and whenever the clinical situation changes (see STEP SK below)			
STEP ONE: CLASSIFICATION OF PATIENT – Tick the box that applies			
Mobility Assessment for all patients (tick the relevant box)			
Surgical Patient: <input type="checkbox"/>		Medical Patient: not ambulant <input type="checkbox"/>	
		Medical Patient: ambulant <input type="checkbox"/>	
Assess for thrombosis and bleeding risk (steps two and three below)			Risk assessment not complete (sign below, step five)
STEP TWO: ASSESS THROMBOSIS RISK FACTORS – Tick all boxes that apply or tick here if NO thrombosis risk factor			
<input type="checkbox"/>			
Significantly reduced mobility for 3 days or more	<input type="checkbox"/>	Active cancer or cancer treatment	<input type="checkbox"/>
Hip or knee replacement	<input type="checkbox"/>	Age > 60 years	<input type="checkbox"/>
Hip fracture	<input type="checkbox"/>	Dehydration	<input type="checkbox"/>
Total anaesthetic plus surgical time >90 minutes	<input type="checkbox"/>	Known thrombophilia	<input type="checkbox"/>
Surgery involving pelvis or lower limb with total anaesthetic plus surgical time >60 minutes	<input type="checkbox"/>	Medical morbidity (heart failure; respiratory disease; infection; inflammatory conditions; metabolic, diabetic/endocrine crisis)	<input type="checkbox"/>
Acute surgical admission with inflammatory or intra-abdominal condition	<input type="checkbox"/>	Obesity (BMI >30kg/m ²)	<input type="checkbox"/>
Critical Care admission	<input type="checkbox"/>	On HRT or oestrogen containing contraceptive pill	<input type="checkbox"/>
Plaster cast immobilisation of lower limb	<input type="checkbox"/>	Personal history or first degree relative with PE or DVT	<input type="checkbox"/>
	<input type="checkbox"/>	Reduced mobility	<input type="checkbox"/>

- Risk assess all patients
 - Thrombotic risk
 - Bleeding risk

Patient information

- Give written advice to all patients on risks, prevention, signs and management of VTE.



Offer thromboprophylaxis

- Offer mechanical and /or chemical thromboprophylaxis to patients considered at high risk of thrombosis but low risk bleeding
-But which patients are sufficiently high risk to be offered heparin and for how long they should be treated remains unclear

How can we improve management for AS patients

- Inform patients of risks to enable them to make choices and manage risk
- Collect more data
 - Which risk factors predict VTE
 - Risks and benefits of different types and duration of prophylaxis

Summary

- VTE occurs after day surgery in approx. 1 in 1000 patients
- Varicose vein surgery has higher risk 1 in 100
- Risk assessment enables high risk patients to be offered chemical thromboprophylaxis
- More evidence is needed to clarify duration and how effective this is.