	Policy Number: 7311-60-030 Title: Venous Thromboprophylaxis
Authorization [ ] President and CEO [X] Vice President, Finance and Corporate Services	Source: Chair, Interprofessional Practice Advisory Council Cross Index: Date Approved: July 4, 2013 Date Revised: Date Effective: July 17, 2013 Date Reaffirmed: Scope: Acute Care

OVERVIEW

Venous thromboembolism (VTE) is one of the most common complications of hospitalization and the most common preventable cause of hospital death.

DEFINITIONS

Deep vein thrombosis (DVT) is a thrombus ("blood clot") occurring in one or more deep veins, especially in the legs, where it may produce leg swelling and/or pain.

Pulmonary embolism (PE) is a thrombus that arises in a deep vein and embolizes to one or more of the pulmonary arteries where it may result in breathlessness, chest pain, hemoptysis, syncope, or death.

Thromboprophylaxis refers to the use of anticoagulant medication or mechanical methods to prevent VTE from developing in patients who are at risk.

Venous thromboembolism (VTE) is a thromboembolic event ("blood clot") that develops within the venous system and includes both deep vein thrombosis and pulmonary embolism.

1. PURPOSE

The purpose of this policy is to improve patient safety through evidence-based use of thromboprophylaxis to reduce the incidence of preventable, hospital-acquired venous thromboembolism.

2. PRINCIPLES

2.1 Approximately 60% of all VTE originates in hospitals, either during hospitalization or in the 6-week period post-discharge.[1] VTE is the most preventable cause of hospital death and disability.[2]

2.2 Risk factors for VTE are numerous. The most common risk factor for VTE is immobility. Almost every adult hospitalized patient has at least one risk factor and most have multiple risk factors.[3]

2.2.1 Major risk factors for VTE include:

- Surgery
- Trauma (major trauma or lower-extremity injury)
- Immobility, lower-extremity paresis
- Cancer (active or occult)
- Cancer therapy (hormonal, chemotherapy, angiogenesis inhibitors, radiotherapy)
- Venous compression (tumour, enlarged lymph nodes, hematoma, arterial abnormality)
- Previous VTE
- Increasing age
- Pregnancy and the postpartum period
- Estrogen-containing oral contraceptives or hormone replacement therapy
- Selective estrogen receptor modulators
- Erythropoiesis-stimulating agents
- Acute medical illness
- Inflammatory bowel disease
- Nephrotic syndrome
- Myeloproliferative disorders
- Obesity
- Central venous catheterization
- Inherited or acquired thrombophilia

2.3 Thromboprophylaxis has been shown to reduce symptomatic and fatal VTE as well as all-cause mortality, while reducing healthcare costs.[4,5,6,7] Evidence-based guidelines recommend routine use of thromboprophylaxis for most adult hospitalized patients.[4]

2.4 The appropriate use of thromboprophylaxis is considered to be the number one ranked patient safety practice for hospitals.[8] Routine evaluation of hospital patients for VTE risk and provision of thromboprophylaxis are standards of care.[9, 10]

2.5 The underlying principle guiding the use of thromboprophylaxis in SHR is that all patients at risk receive it, when indicated.

3. POLICY

3.1 It is Saskatoon Health Region's (SHR's) position that best practices be followed to ensure that hospitalized patients are assessed for their risk of VTE and that patients receive appropriate thromboprophylaxis, when indicated.

3.2 Every hospitalized patient (see exceptions, 3.2.1 below) must be assessed for their risk of VTE at each of the following intervals/points of care:

- Time of admission,
- Significant change in clinical status,
- Risk of clinically significant bleeding increases or decreases,

- Patient's mobility changes,
- Care transitions within hospital (e.g. transfer to lower or high acuity care) or outside hospital (e.g. transfer to long term care) and,
- Discharge.

Exceptions

3.2.1 Individual risk assessment for VTE is recommended, but not required, in the following patient groups:

- Patients who are fully mobile and expected to have a length of stay less than 48 hours (fully mobile is defined as "activity as at home"),
- Patients admitted for psychiatric care without concurrent medical illness,
- Patients who are palliative, compassionate terminal care or end of life care,
- Patients with no acute medical conditions who are awaiting placement in long-term care,
- Patients aged less than 18 years.

3.3 Thromboprophylaxis must be provided to every hospitalized patient in whom it is indicated, balancing the risk of thrombosis, the risk of clinically significant bleeding and the available options at SHR (see Appendix A).

3.3.1 The patient groups identified in 3.2.1 above do not require routine thromboprophylaxis.

3.4 The rationale for not providing thromboprophylaxis must be documented in the health record.

3.5 Orders for VTE assessment and thromboprophylaxis should be included in admission and transfer prescriber order sets as they are developed or revised.

4. ROLES AND RESPONSIBILITIES

4.1 Most Responsible Physician (MRP) or designate

4.1.1 Assess patients for risk of VTE and risk of clinically significant bleeding.

4.1.2 Prescribe thromboprophylaxis as per Appendix A.

4.2 All healthcare providers

4.2.1 Be familiar with and adhere to the professionally relevant sections of this policy and procedure.

5. POLICY MANAGEMENT

The management of this policy including policy education, monitoring, implementation and amendment is the responsibility of Chair, Interprofessional Practice Advisory Council.

6. NON-COMPLIANCE/BREACH

Non-compliance with this policy will result in a review of the situation with the Department Head. Repeated non-compliance may result in disciplinary action, up to and including termination of employment and/or privileges with SHR.

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1. PURPOSE

The purpose of this procedure is to establish the process for VTE assessment and thromboprophylaxis.

2. PROCEDURE

2.1 MRP (or designate) assesses the hospitalized patient for risk of VTE and risk of clinically significant bleeding.

2.2 The MRP (or designate) orders thromboprophylaxis for patients at risk of VTE.

2.2.1 Anticoagulant prophylaxis is preferred. When contraindications to anticoagulation exist, mechanical prophylaxis must be ordered unless also contraindicated (see SHR Guidelines for Thromboprophylaxis: Adult Patients, Appendix A)).

2.2.2 Patients who are actively bleeding or have a high risk of clinically significant bleeding should not receive anticoagulant prophylaxis. Mechanical prophylaxis should be used unless contraindicated.

2.2.3 Patients must be reassessed daily for proper use of mechanical prophylaxis and bleeding risk. Anticoagulant prophylaxis should be started when the risk of clinically significant bleeding decreases.

2.3 The MRP (or designate) re-assesses the need for thromboprophylaxis at the intervals/points of care identified in policy 3.2.

2.4 Departments include VTE assessment and thromboprophylaxis in prescriber order sets as they are developed or revised.

3. PROCEDURE MANAGEMENT

The management of this procedure including procedures education, monitoring, implementation and amendment is the responsibility of the Chair, Interprofessional Practice Advisory Council.

6. NON-COMPLIANCE/BREACH

Non-compliance with this procedure may result in a review of the situation with the Department Head.

REFERENCES

1. Ontario Hospital Association. Surgical Safety Checklist Implementation Toolkit. 2010. Available at: www.oha.com/Services/PatientSafety/Pages/SurgicalSafetyChecklist.aspx
2. Selby R, Geerts W. Prevention of venous thromboembolism: consensus, controversies, and challenges. Hematology 2009; 286-292
3. Gangireddy C et al. Risk factors and clinical impact of postoperative symptomatic venous thromboembolism. J Vasc Surg 2007;45:335–342
4. Guyatt GH et al. Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. CHEST 2012: 141(2): e195S-e350S
5. MacDougall DA et al. Economic burden of deep-vein thrombosis, pulmonary embolism and post-thrombotic syndrome. Am J Health Syst Pharm 2006; 63(20 Suppl 6):S5-S15
6. Collins R et al. Reduction in fatal pulmonary embolism and venous thrombosis by perioperative administration of subcutaneous heparin. Overview of randomized trials in general, orthopedic and urologic surgery. N Engl J Med 1988; 318:1162 – 1173
7. Maynard G, Stein J. Preventing Hospital-Acquired Venous Thromboembolism: A Guide for Effective Quality Improvement. Prepared by the Society of Hospital Medicine. Available at: www.hospitalmedicine.org/ResourceRoomRedesign/RR_VTE/PDFs/VTEPreventionGuidev3.3.pdf
8. Shojania KG et al. Making Health Care Safer: A Critical Analysis of Patient Safety Practices. Evidence Report / Technology Assessment No. 43 (Prepared by the University of California at San Francisco- Stanford Evidence-based Practice Center under Contract No. 290-97-0013). AHRQ Publication No. 01-E058, Rockville, MD. Agency for Healthcare Research and Quality. 2001:1-8, 332-346. Available at: www.ahrq.gov/clinic/ptsafety/pdf/ptsafety.pdf
9. Accreditation Canada's VTE Required Organizational Practice 2011
10. Sunnybrook Health Sciences Centre, Venous Thromboprophylaxis Policy and Guidelines (2010Nov18).

Appendix A

Saskatoon Health Region
Guidelines for Thromboprophylaxis: Adult Patients
June 2013

1. Anticoagulant Prophylaxis

1.1. Tinzaparin

For most medical and surgical patients, the recommended thromboprophylaxis is tinzaparin subcutaneously once daily.

Tinzaparin dosing for thromboprophylaxis:

Actual Body Weight	Tinzaparin Dose
Under 50kg	3,500 units subcut daily
50 – 79 kg	4,500 units subcut daily
80 – 119 kg	8,000 units subcut daily
120 – 149 kg	10,000 units subcut daily
150 kg or greater	14,000 units subcut daily

Tinzaparin prophylaxis should be scheduled at one of the following standard times:

Once daily AM (0900 hrs)
or
Once daily HS (2100 hrs)

Depending on the time of admission or surgery, the first dose is given at either:

2100 hours on the day of admission or the surgical day
OR
0900 hours that day or the following day.

For patients with epidural catheters, the tinzaparin dose is given in the morning to facilitate the timing of catheter removal. For patients who have had an epidural catheter removed, the next dose of tinzaparin should be delayed for at least 2 hours after removal[1]

1.2. Heparin

Heparin 5,000 units subcut q12h is recommended for medical and surgical patients with renal impairment (creatinine clearance less than 30 mL/min or dialysis)

Heparin prophylaxis should be scheduled at 0900 and 2100hrs

1.3. Rivaroxaban

Rivaroxaban 10 mg po daily is recommended for thromboprophylaxis following knee and hip replacement surgeries. Tinzaparin is an accepted alternative.

[1] SHR Nursing Policy, Epidural – Catheter Removal, #1080, January 2010

The first dose of rivaroxaban should be given 6 to 10 hours post-operatively, after hemostasis has been established.

An extended duration of thromboprophylaxis is recommended following knee and hip replacement surgery: minimum of 10 to 14 days or up to 35 days.

1.4. Thromboprophylaxis and Heparin-induced thrombocytopenia

Options for thromboprophylaxis in patients with heparin-induced thrombocytopenia include:

Fondaparinux 2.5 mg subcut daily
Danaparoid 750 units subcut q 8-12 h (patient weight 90kg or less)
Danaparoid 1250 units subcut q 8-12 h (patient weight more than 90kg)

1.5. Thromboprophylaxis and Bleeding Risk

Anticoagulant prophylaxis should not be held unless there is evidence of active bleeding or there is a substantial increase in bleeding risk. Doses may be held prior to invasive procedures that are associated with a risk of clinically significant bleeding.

2. Mechanical Prophylaxis

2.1. Mechanical Prophylaxis

Options for mechanical prophylaxis include:

Bilateral graduated compression (anti-embolic) stockings (GCS)
Bilateral intermittent pneumatic compression (IPC)

If GCS or IPC are ordered, they should be used continuously on both legs except during bathing, walking and TID skin care.