Appropriate Use and Understanding of Mechanical Thromboprophylaxis for Adult Surgical Inpatients

Dr Aoife Dervin (Foundation Year One Doctor), Sheena Patel (Specialist Anticoagulation Pharmacist), Mr Charles Gibbons (Consultant Trauma and Orthopaedic Surgeon)

Introduction

Venous thromboembolism (VTE) is a major cause of death and morbidity in hospitalised patients but is potentially preventable with appropriate measures. All surgical patients at risk of VTE should be offered appropriate pharmacological and mechanical thromboprophylaxis unless contraindicated. Mechanical thromboprophylaxis is included as a national quality standard as part of VTE prevention measures to ensure appropriate use and monitoring in surgical inpatients at risk of VTE\(^1,2\).

Context

Following initial audit, our acute care hospital implemented a number of strategies to improve the prescribing, administration, monitoring, documentation and understanding of mechanical thromboprophylaxis for surgical inpatients at risk of VTE. Implementations included:

- A new hospital guideline on mechanical thromboprophylaxis
- Introduction of an anti-embolism stocking (AES) monitoring form for daily inspection of skin condition
- An e-learning module on mechanical thromboprophylaxis for medical and nursing staff
- A patient information leaflet on mechanical thromboprophylaxis

Method

Development of data tools to ensure relevant data capture

- Data collection performed over 1 week on all surgical wards (50 patients)
- Sources of information used included the Trust’s electronic prescribing system and bedside observation folder
- Patients were examined for visual inspection of AES and informal discussion about their understanding of mechanical thromboprophylaxis and use of AES

Standards & Results

1. 100% of adult surgical inpatients undergoing a surgical procedure and at risk of VTE will have appropriate mechanical thromboprophylaxis prescribed on admission, unless contraindicated

Adherence to standard: 31%

2. 100% of adult surgical inpatients will be wearing appropriate mechanical thromboprophylaxis, unless contraindicated

Adherence to standard: 70%

3. 100% of adult surgical inpatients will have daily documented administration of mechanical thromboprophylaxis on the administration chart, if not contraindicated

Adherence to standard: 31%

4. 100% of adult surgical inpatients who are prescribed AES will have an AES monitoring form completed by nursing staff and available in the bedside folder for daily inspection of skin condition and appropriate monitoring

Adherence to standard: 11%

5. 100% of adult surgical inpatients will understand that the use of mechanical thromboprophylaxis will help reduce their risk of developing VTE

Adherence to standard: 56%

Aims & Objectives

To establish:

- whether adult surgical inpatients are prescribed, administered and monitored AES, unless contraindicated
- patients prescribed AES that have an AES monitoring form present and completed
- patient’s understanding on the use of AES
- the effectiveness of implemented interventions from the initial audit

Contraindications to AES

- Suspected or proven peripheral arterial disease
- Peptic or duodenal ulcer, perforating
- Peripheral neuropathy or other causes of sensory impairment (caution in diabetic patients)
- Locally in situ in which limbs may cause damage such as, fragile ‘tissue paper’ skin, dermatitis, gauze or recent skin graft
- Known allergy to material of manufacture
- Cardiac failure
- Severe leg oedema or pulmonary oedema due to congestive heart failure
- Unusual leg size or shape
- Major limb deformity preventing correct fit
- Lower limb infection e.g. cellulitis, venerection
- Pressure ulcers to lower limb
- Hypertension users

Actions

- Education and awareness on mechanical thromboprophylaxis for medical, nursing and pharmacy staff
- Clear documentation in medical notes/prescribing system on any contraindications for AES
- Bulletin circulated to nursing staff, on surgical wards, summarising key information on mechanical thromboprophylaxis
- Re-launch of the AES monitoring form on surgical wards
- Circulation of the patient information leaflet on mechanical thromboprophylaxis

Lessons Learnt

- Despite previous interventions, results are not encouraging
- Mechanical thromboprophylaxis requires embedding into the local VTE prevention programme
- A multidisciplinary and integrated approach with relevant staff groups is key to enhancing mechanical thromboprophylaxis measures
- Education and feedback on performance will help improve practice
- Acting on user feedback embeds processes and ensures user-acceptance

Messages for Others

- Ensure mechanical thromboprophylaxis is part of VTE prevention programme
- Involve nursing staff in strategy as they have a pivotal role in helping to reduce patient’s risk of VTE
- Educate all multidisciplinary staff on appropriate use of mechanical thromboprophylaxis e.g. indications, contraindications, accurate fitting and daily monitoring to ensure correct use

References:

1. NICE Clinical Guideline 92: Venous thromboembolism - reducing the risk. NICE, January 2010
2. NICE Quality Standard: Venous thromboembolism – prevention. NICE, July 2010