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Title: Perioperative DVT prophylaxis in surgical patients admitted to General Medicine with PE

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Introduction:

Bedridden patients who have recently had surgery are at high risk (20-70%) of developing clots in their legs (Deep Vein Thrombosis, DVT) which have the potential to cause leg swelling or to break up and travel to the lungs where they can block a major artery (Pulmonary Embolism, PE). These two conditions fall under the umbrella of Venous Thromboembolism (VTE). In the last 15 years, heparin injections have been recommended as the best means of prevention in surgical patients. Heparin prevents the formation of new clots while the body breaks down existing clots, thus reducing the incidence of VTEs. When the risk of bleeding is high, various mechanical methods may be used instead of heparin, including compression stockings and mechanical foot pumps. Both of these methods serve to increase venous blood flow from the legs, thereby decreasing risk of stasis and clot formation.

We aimed to identify patients admitted to CDHB for either DVT or PE within 3 months of a surgical procedure, and then to analyse whatever VTE preventative treatment they had at the time of their surgery.

Methods:

- We generated a list of all the inpatients admitted to CHDB with PE or DVT during 2013 using our electronic Decision Support System
- From this list we selected those who had also had a surgical procedure performed in the 3 months prior to their admission for PE or DVT
- Using a combination of handwritten drug charts and electronic discharge summaries we recorded the surgical procedure performed, and whether preventative heparin injections or mechanical methods were used. This included the dose and duration of heparin treatment.
- Data was entered into a spreadsheet and analysed using Microsoft Excel

Results:

In 2013, 97 patients were admitted to CDHB for PE and/or DVT, [PE 87%, DVT 11% both 2%]. Thirty-seven % of these patients were admitted to General Medicine, 30% to Orthopaedics and the remainder to other wards (mainly Older Persons' Health and Oncology). Previously, 52% had Orthopaedic surgery [mainly elective knee and hip replacements]; 16% had General surgery and the remainder had Specialty surgery (Urology, Neurosurgery, Gynecology and Vascular). Some had their surgery privately (13%), but the majority had their surgery at Christchurch, Burwood and The Princess Margaret Hospitals (76%, 11% and 1% respectively).

Out of 97 patients, 81 had accessible notes and drug information.

- 58% received preventative heparin treatment
- 9% received only mechanical prevention, 9% received both heparin injections and mechanical prevention
- The average dose of preventative heparin was 40 mg daily
- Patients were treated with heparin injections for an average of 7.5 days at which point they were either mobile or had already developed VTE

Conclusion:

Surgery is the most important preventable risk factor for VTE. PE following surgery is relatively rare (2%) but can be life-threatening even in young patients, and research has demonstrated that heparin is the most effective preventative treatment. This data gives us information on our local surgeons' compliance with the current international guidelines and also how effective heparin is for preventing VTE. Sixty % of our patients received heparin at the time of surgery, suggesting that it was not effective, or that the dose and duration of treatment were insufficient. The remaining 40% patients did not receive heparin at all which suggests that many of them had a contra-indication to this treatment (eg. bleeding risk) at the time of surgery.