Post-Operative Deep Vein Thrombosis (DVT) Prophylaxis

By Holly Baddock

"Among post-operative patients who have undergone major orthopedic surgery, how effective is the new oral anticoagulant Dabigatran compared to prophylactic Warfarin against post-operative Deep Vein Thrombosis (DVT)?"

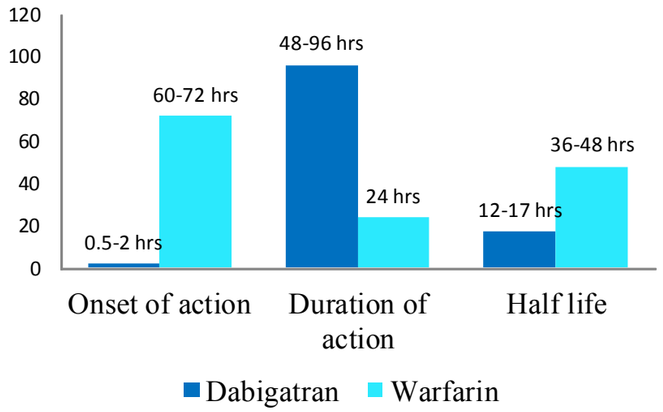
Introduction

Venous thromboembolism, without prophylaxis, is considered to be the second most common surgical adverse event after infection (Januel et al., 2012). Deep vein thrombosis (DVT), a form of VTE, is a blood clot which form in the deep veins within the body.

Literature Review

Dabigatran, a new oral anticoagulant, is now fully funded in New Zealand as an alternative to warfarin in the prophylaxis against post-operative DVT. Januel et al., (2012) found that there were fewer incidences of post-operative DVT in orthopedic patients taking dabigatran, with a 1% chance after total/partial knee arthroplasty and 0.5 % chance after total/partial hip arthroplasty. Schulman et al., 2009 found that dabigatran has superior safety to warfarin, improved pharmacokinetics, fewer food and drug interactions and does not require blood tests.

Comparison of pharmacokinetics of Dabigatran and Warfarin



Implications for practise

After major surgery, the normal dose of dabigatran is 220mg (twice daily) and a creatinine clearance of 30-50 mL/min requires 150mg (twice) (Burgess et al., n.d.).

There are pros and cons for dabigatran as a prophylaxis against post-operative DVT. Positives for patients and nurses include: Its ability to be approved without the need of a specific antidote due to its fast elimination. If a dose is missed it can be taken again when the patient remembers, provided there is more that 6 hours till the next due dose (Fanola, 2015). Schulman et al., (2009) found that there was a lower chance of bleeding for those patients taking dabigatran. According to Majeed et al., (2013) death from bleeding was also significantly less for those taking dabigatran compared to warfarin.

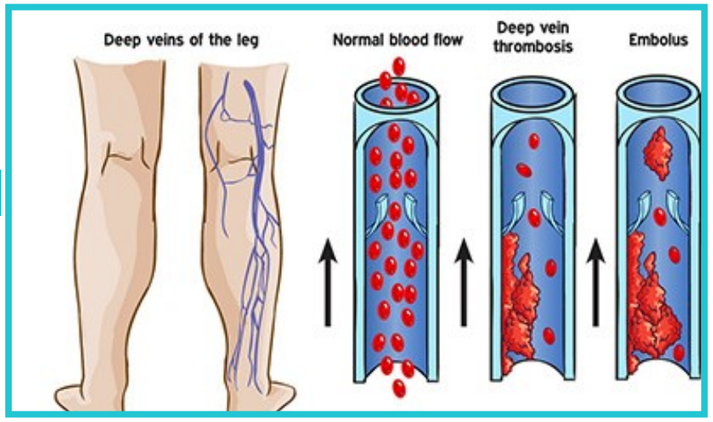
Negatives aspects of dabigatran for patients and nurses include: The fact that it must be taken twice daily, this increases the risk of patients forgetting. Dyspepsia (indigestion) is also the main adverse event for patients taking dabigatran, as well as coronary incidents and myocardial infarctions, the reason for this remains unknown (Schulman et al., 2009).

Recommendations

Dabigatran should be recommended for patients with a normal kidney function and patients who have had complications in the past with having frequent blood tests while on warfarin. (Burgess et al., n.d.).
Dabigatran is contraindicated in those with a creatinine clearance less than 30 mL/minute undergoing major orthopedic surgery, because it is largely renally excreted. It should also be used with caution in those taking antiplatelet medication due to possible interactions, also those over 80 who have an increased risk of renal failure (Burgess et al., n.d.).

Conclusion

Patients who have undergone TPKA and TPHA have a higher chance of developing post-operative DVT due to the location of injury. Prophylaxis remains essential for patients undergoing major orthopedic surgery to avoid DVT. Dabigatran proves to be a positive alternative to warfarin, as a prophylactic against post-operative DVT in major orthopedic surgery, with superior safety, improved pharmacokinetics, a lower risk of major bleeding and death from bleeding being significantly less than warfarin.



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