ARJOHUNTLEIGH

The Importance of Deep Vein Thrombosis Prophylaxis in Trauma Patients

Venous thromboembolism (VTE) is a major cause of death and mortality among hospitalised patients[1] and prevalence rates of deep vein thrombosis (DVT) in trauma patients without prophylaxis, have been demonstrated to be more than 60%[2,3].

One clinical study[4] revealed that thromboembolic complications accounted for 19% of readmissions to hospital following trauma. The outcomes of untreated DVT include; risk of fatal pulmonary embolism (PE)[5], the long term effects of post-phlebitic syndrome[6], venous leg ulceration[7], risk of further episodes of VTE[8] and associated significant long term economic and quality of life issues[9].

Why does trauma place the patient at risk of VTE development?

Venous stasis

Multiple trauma patients often have long periods of immobility due to extensive injury and subsequent surgery. There is also loss of normal physiological muscle contraction in the lower limbs[10].

Alteration in fibrinolytic activity

There may be direct vessel injury from trauma to the pelvis or limbs[11] resulting in the enhanced release of circulating procoagulants. It has been established for many years that major surgery and trauma are accompanied by a recognised reduction in the spontaneous fibrinolytic activity of the blood, a so called 'fibrinolytic shutdown'[12-16]. This phenomenon is reported to commence during or soon after the traumatic event/surgical procedure and last for at least 3 days[12,15].

Mechanical and biochemical effects of FLOWTRON® DVT Prophylaxis Systems

Prevention of venous stasis

Use of *FLOWTRON* DVT Prophylaxis Systems prevents venous stasis by active augmentation of blood flow[17-23]. This reduces stasis, flushes valve pockets where thrombi originate, decreases venous hypertension and decreases interstitial oedema[24].

Increased fibrinolytic activity

Use of *FLOWTRON* Systems results in an increase in the fibrinolytic activity of the blood[25,26], a suppression of procoagulant factors[27] and may assist in the reversal or prevention of fibrinolytic shutdown.

Clinical studies using the *FLOWTRON* DVT Prophylaxis Systems

Clinical studies undertaken in surgical patients utilising *FLOWTRON* Systems have established high levels of efficacy combined with excellent patient concordance and freedom from adverse effects[10,28-32].

When *FLOWTRON* Systems were used as the method of prophylaxis compared to low molecular weight heparin (LMWH), the operative field was easier to work in and drier[29,31,33].

Significant cost savings have also been reported in a recent randomised controlled trial of 442 trauma patients comparing use of *FLOWTRON* Systems with Enoxaparin[34]. During the 23 month study VTE rates were similar for the two groups, however the *FLOWTRON* Systems group attracted a financial saving of US$67,300.

The paper highlights how the use of ***FLOWTRON* Systems to prevent DVT, is a safe and cost effective alternative to low molecular weight heparin**.

Many trauma patients have a complicated clinical profile and use of pharmacological agents may not be appropriate due to the relatively high frequency of drug associated bleeding complications[35].

Intermittent pneumatic compression (IPC) does not increase the risk of bleeding and has been highlighted in major evidence based consensus papers and reviews,as being the optimal strategy in patients where bleeding is a major concern[5,6,35,36].

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