

# RGH Pharmacy E-Bulletin

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A joint initiative of the Patient Services Section and the Drug and Therapeutics Information Service of the Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia. The RGH Pharmacy E-Bulletin is distributed in electronic format on a weekly basis, and aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications.

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## Enoxaparin vs Unfractionated heparin after acute ischemic stroke

Ischaemic stroke is a growing health problem worldwide. In Australia, there are currently about 53 000 ischemic strokes each year, and a third of these patients will die during the first 12 months after the event. It is predicted that the incidence of ischemic stroke will increase further with an aging population.

One of the common and preventable complications of stroke is Venous Thromboembolism (VTE), including Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE). Unfractionated Heparin (UFH) and low molecular weight heparins (LMWH) have been recommended for the prophylaxis of VTE. Several studies have examined the effectiveness of (UFH) or enoxaparin in the prevention of VTE.

The International Stroke Trial compared antithrombotic therapy (heparin 5 000 units twice daily or 12500 units twice daily) to an approach that did not include antithrombotic therapy. The results of this trial showed a non-significant reduction in deaths within 14 days amongst those who were treated with heparin, but after six months both groups were the similar. The heparin group also has fewer recurrent ischemic events within 14 days, but this was offset by a similar increase of ischaemic strokes undergoing haemorrhagic transformation (9 fatal extracranial bleeds per 1000).

Results from another small scale study (PROTECT) indicate that LMWH was equivalent or better than UFH in the prevention of VTE after ischemic stroke.

Conversely, a meta-analysis has reported that whilst LMWH decreased the risk of DVT and PE by about two-thirds compared to placebo, the risk of extracranial bleeding doubled.

Results from the most recent trial (PREVAIL) have helped provide further evidence on which to base a selection of the most appropriate therapy for the prevention of VTE after a stroke. In this study, 1762 patients with moderate-severe acute ischemic stroke were randomly assigned to receive either enoxaparin 40 mg daily or UFH 5000 units twice daily. Enoxaparin significantly decreased the frequency of VTE compared to UFH (10% vs 18%). There was also a non-significant decrease in risk of PE (1 vs 6 patients). The occurrence of any bleeding at the end of the treatment period was similar in both groups (8%). Extracranial bleeding (mainly gastrointestinal and non fatal) was higher in the enoxaparin group (7 patients vs nil). Transformation to intracranial haemorrhage was less of a clinical issue than was previously thought from the International Stroke Trial: intracranial haemorrhage occurred in 4 patients in the enoxaparin group vs 6 in the UFH group.

This recent research would suggest that enoxaparin 40 mg daily is more effective than UFH 5000 units twice daily in preventing VTE following acute ischemic stroke, and may offer better a ratio of clinical benefits to risk. Further research into this issue will be required to provide more definitive information.

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