

## The use of low molecular weight heparin (LMWH) in haemodialysis (HD)

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### Abstract :

**Introduction:** Unfractionated heparin (UFH) which is widely used as an anti coagulant in haemodialysis cannot be regarded as an ideal anticoagulant since its use is associated with increased post HD bleeding tendency. LMWH preparations, however, have been used successfully in HD, have effective anti thrombotic properties and less bleeding tendency in doses comparable to UFH. Thus one rationale for using LMWH as alternative to heparin would be to reduce the risk of bleeding. Another advantage could be a simplified routine for heparinisation (a single dose at the beginning of HD) due to the long half life of LMWH. This is the first report of the use of LMWH in Sri Lanka. Objective: To compare the usual regimen of heparin (given as an initial bolus followed by hourly injections) with a recommended regimen involving a LMWH preparation (given only as a single injection at the start of HD).

**Method:** Forty HD procedures in 25 patients (21 male, 4 female) who were in end stage renal failure and awaiting renal transplantation were studied at a dialysis centre in Colombo. Patient's prior consent was obtained and they were allocated alternatively to Group I (UFH) or Group II (LMWH) in a single blinded manner. Patients with severe anaemia (Hb < 6mg %) and those with previous post HD bleeding complications were excluded from the study. Bleeding Time (BT), Clotting Time (CT) were done before and after each 4 hour HD. Venous compression time (VCT) and arterial compression time (ACT) were recorded after the removal of the venous and arterial catheters at the end of HD.

**Results:** The mean Clotting Time at the end of HD for Gp I (UFH) and Gp II (LMWH) were 15.64 and 9.38 minutes respectively. ( $p = 0.01$  Student T test). However the differences between the mean Bleeding Time (7.17 and 4.88 min,  $p = 0.49$ ). VCT (2.08 and 2.28 min ( $p = 0.49$ ) and ACT (3.08 and 2.83,  $p = 0.92$ ) were not significant between the two groups.

**Conclusions:** LMWH and UFH are both good anticoagulants in the doses used in this study. But LMWH had significantly less prolongation of the Clotting Time. One other advantage of LMWH is that it can be given as a single dose at the beginning of HD thereby reducing nursing time. Further, for those patients who are at increased risk of bleeding (eg renal failure due to snake bite) it may be more advantageous to use LMWH for HD.