Implementing an anticoagulation protocol design – a safe and effective management of anticoagulation therapy

***Dr Ali M Al Lehbi MD*[1],** *Mr Archie D Bunani* MN[2], *Dr Ayesha H Noor* PharmD[3]

DaVita Lehbi Care Kingdom of Saudi Arabia *([1]Medical Department, [2]Clinical Services, [3]Pharmacy Department)*

RATIONALE

Hemodialysis is a procedure that imply turbulent blood flow, high shear stress, and contact of blood to artificial surfaces. This nonphysiological environment leads to activation of platelets, leukocytes, and the coagulation cascade. Anticoagulation in hemodialysis is targeted to prevent this activation of coagulation during the procedure.

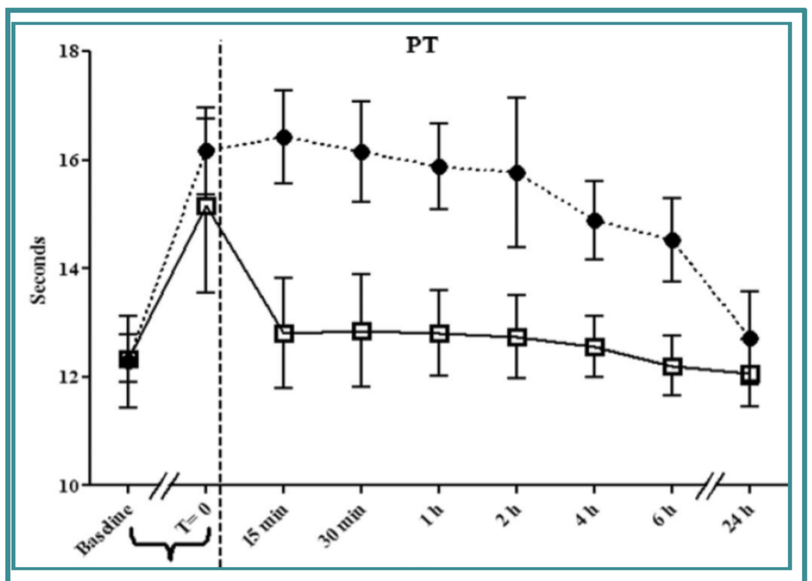
OBJECTIVES AND METHODS

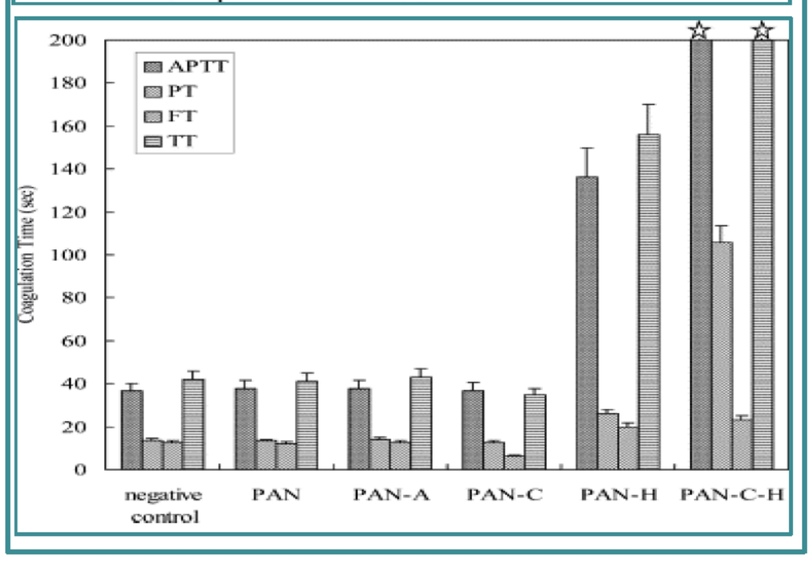
Objectives:

This study evaluated the protocol plan designed to deliver both High and Low Molecular Weight Heparins (HMWH, LMWH) and develop a relationship between filter clotting, post dialysis bleeding (PDB), blood flow rate (Qb), and activated Partial Thromboplastin Time (aPTT) among hemodialysis (HD) patients.

Methods:

208 HD patients were evaluated in cross-over design; bolus-LMWH and HMWH vis-a-vis for 6 months each. Regression and ANOVA were used for analysis with R square related to adjustments.





RESULTS

Results indicated filter clotting among fistula (f=8, *spv=0.742*) and catheter (f=17, *spv=0.323*) with bolus-LMWH. Clotting incidences were also noted with bolus-HMWH on cross-over with similar procedures; (f=12, *spv=0.79*), (f=19, *spv=0.510*). The mean fistula/graft post dialysis bleeding time is 4.8 minutes (mean aPTT=15 to 25 sec) with 11.43% accounted cases of >10 minutes post dialysis bleeding and mean Qb of 432ml/mn (fistula) and 278ml/mn (catheter). R square was used to analyze clotting and bleeding events revealing a significance (*R*=0.046). Strong correlation was notable on bolus-LMWH use against aPTT (*p=+0.78)* with 0.003 mean square in regression analysis. ***Notably, there were lower clotting incidences with bolus-LMWH use even if Qb of either accesses are below mean Qb rate (p=0.001), while at least 10% incidences noted with bolus-HMWH with Qb below mean (p=0.004).***

IMPLICATIONS TO PRACTICE

The *anticoagulation protocol design* had been effective in enhancing therapy while promoting optimal dialysis. The study provides direction for future researches related to Qb rate and LMWH which may be beneficial among poor flow catheters/fistula to preventing in-dialysis clotting incidences.

REFERENCES

1.) Bohler J, Schollmeyer P, Dressel B, Dobos G, Horl WH. Reduction of granulocyte activation during hemodialysis with regional citrate anticoagulation—dissociation of complement activation and neutropenia from neutrophil degranulation. J Am Soc Nephrol.

2.) Hofbauer R, Moser D, Frass M, et al. Effect of anticoagulationon blood membrane interactions during hemodialysis. Kidney Int.

3.) Apsner R, Buchmayer H, Lang T, et al. Simplified citrate anticoagulation for high-flux hemodialysis. Am J Kidney Dis.

DaVita Lehbi Care is formerly known as **Al Lehbi Medical Center** or **KtDOQI Dialysis Centers** located in Riyadh Kingdom of Saudi Arabia.

Research Correspondence:
Mr Archie D Bunani *ktdoqi@lehbi.com*
Clinical Resource Nurse *+966 . 4808922 ext 123*

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598--SP
Extracorporeal dialysis: techniques and adequacy II
ALI ALLEHBI
Poster presented at: ERA-EDTA 50th Congress Istanbul, Turkey May 15-21, 2013
PosterSessionOnline.com