

HEPARIN-FREE DIALYSIS WITH CITRATE-CONTAINING DIALYSATE IN PATIENTS UNDER ORAL ANTICOAGULANT : A FEASIBILITY STUDY

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Oral anticoagulant therapy (OAT) is often necessary among arrhythmic hemodialysis (HD) patients. Exposing the patients to an increased risk of bleeding events. Alternative strategies to decrease this risk without circuit clotting are required. Acid-containing citrate may be one of the options.

AIM of the study: To evaluate heparin-free dialysis with the use of a citrate-enriched dialysate in patients under OAT.

METHODS

All patient under OAT were proposed the study. Each patient is its own-control.

Phase 1 (P1) : 2 weeks with standard dialysate (SD) and usual heparin dose

Phase 2 (P2) : 2 weeks with citrate dialysate (CD) with half-dose of heparin

Phase 3 (P3) : 4 weeks with CD and heparin-free HD
Filter clotting was evaluated using the usual visual score (from 0 to 4) in use in the unit. The blood flow ranged between 300 and 350 ml/min and the citrate-dialysate flow was 700 ml/min.

RESULTS

1- 39 patients (75 yo, F/M:10/26) gave their informed consent to participate to the trial. The results are summarized in the **Table 1**.

2- The visual score decreased during heparin-free dialysis but it was not significant.

3- Clotting events were not statistically different between the three periods P1, P2 and P3 (respectively only 2, 2 and 4 circuit clotting episodes).

4- Ionized calcium (iCa) after dialysis decreased significantly between P2 and P3 (mean of $1,22 \pm 0.081$ vs $1,07 \pm 0.23$ mmol/L $p < 0.0001$) whereas there was no statistical difference for total calcium (Tca). Magnesium remained unchanged before and after dialysis at P1, P2 and P3.

5- Parathormone (PTH) assessed before dialysis increased significantly between P2 and P3 (191 ± 137 to 257 ± 155 , $p = 0,008$).

Table 1	P1 (SD)	P2 (CD and heparin half-dose)	P3 (CD and heparin-free)
n sessions	190	170	398
Clean dialyzers after circuit rinsing (%)	92.3	92.3	82.4
Circuit thrombosis (% of dialysis sessions)	1.04	1.18	1.01
Post-dialysis Total Calcium (mmoles/l)	2.38	2.38	2.37
Post-dialysis iCa (mmoles/l)	na	1.22	1.07
Predialysis PTH (pg/ml)	212	191	257

CONCLUSIONS : Heparin-free dialysis with CD can be used in dialysis among patients under OAT without higher risk of clotting events. It requires dialysate calcium adjustment to limit the fall of ionized calcium and the increase in PTH. If confirmed in a larger trial, this strategy could significantly reduce the high bleeding risk in HD patients requiring OAT.

