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Title: Increased Dialysis Dose and Decreased Concentration of Beta-2 Microglobulin with Citrate Dialysate

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Increase in Kt/V was earlier reported with citrate dialysate in 22 patients using reprocessed dialyzers (Ahmad et al, AJKD, 35:493, 2000). The purpose of the present prospective study was to evaluate the effect of citrate dialysate (CD) on Kt/V in a larger number of patients (n=142), on single use dialyzers (Optiflux 180NR and 160NR) and over a longer period (6 months). The Kt/V was compared on regular

non-citrate (NCD) dialysate for 6 months (Naturalyte and Granuflo) with

CD (Citrasate) for following 6 months. During the study the dialyzers and dialysis treatment remained unchanged. Patients, 60 F and 82 M, were 63 +/- 14 years old (mean ± SD) and had been on dialysis for 35 ± 29 months.

As shown in Figure 1 the Kt/V increased significantly during the CD use compared to NCD ($1.57 \pm .20$ Vs $1.51 \pm .20$, Mean ± SD, CD Vs NCD respectively, $p < 0.0001$). Over the 6 months of CD use there was a decline in predialysis beta-2 microglobulin concentration (28.1 to 25.9, $p=0.0001$). Kt/V in 19 patients was one SD below the population average on NCD. The Kt/V in this group was 1.19 ± 0.12 on NCD and on CD it increased to 1.34 ± 0.16 ($p<0.0001$). The remaining 123 patients the Kt/V values were 1.55 and 1.60 on NCD and CD respectively ($p<0.0001$).

The Kt/V remained unchanged during the 6 months on NCD. The switch to CD was associated with increase in Kt/V, apparent in the first 3 month of CD. The increase in the dose was larger in those patients who had lower Kt/V before the switch.

This study suggests that the anticoagulation effect of citrate keeps the dialyzer fibers and pores open and is responsible for the increased removal of urea and beta-2 microglobulin.

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