

Hemodialysis using the Cold Dialysate Regeneration System on Experimentally Induced Renal Failure Dog

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In hemodialysis, plasma BUN and some metabolites are filtered by diffusion across a permeable membrane. Conventional hemodialysis system use a single pass flow of dialysate requiring large volumes of purified water. This means that the conventional systems are not portable and must be installed either in a renal unit at hospital. To resolve these problems, reducing the volume of dialysate is required. In this study, the cold dialysate regeneration system(CDRS) utilized small volume of dialysate for the regeneration and recirculation, using charcoal columns. So, we estimate the effects of Hemodialysis using the CDRS on Experimentally induced Renal Failure Dog.

Two healthy dogs (about 30kg BW, male) were used. Experimental renal failure was induced by the ligation of bilateral renal artery. Daily investigated parameters were clinical signs, laboratory data. conventional hemodialysis system and Hemodialysis using the CDRS were started above 90 mg/100ml BUN level. The efficacy was evaluated on the basis of blood chemistry, electrolytes, urea and creatinine reduction rate and urea Kt/V index. Heparin was administered 100 IU/Kg before dialysis and then 100 IU/Kg via IV route every 90 minutes.

In conventional hemodialysis system and Hemodialysis using the CDRS, the urea reduction rate, creatinine reduction rate and urea Kt/V index were similar decrement every an hour. Accordingly to the effects, clinical signs of uremic were decreased in severity.

Hemodialysis using the Cold Dialysate Regeneration System is as effective as conventional hemodialysis system to eliminate the small and middle uremic toxins molecules. We hope that it will be used in small animal clinic.

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