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Saving Water During Hemodialysis In A Water Scarce Country

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Objectives : · To determine adequacy of maintenance hemodialysis with reduced dialysate flow · To quantify the amount of water saved by reducing dialysate flow

Methods : A prospective single centre pilot study was performed at the Hemodialysis unit of Bahria International Hospital, Lahore. 10 stable hemodialysis patients having dialysis sessions thrice per week were recruited in whom we reduced the dialysate flow rate from the standard 500ml/minute to 300ml/minute. These patients were followed up for a period of 3 weeks and 2 outcomes were assessed i.e. any change in uremic symptoms (assessed by a pre-prepared questionnaire) and an average Kt/V of 9 dialysis sessions both pre and post reduction of the dialysate flow.

Results : The average Kt/V with the standard dialysate flow rate (500ml/minute) was found to be 1.3 (1.06 to 1.38) while the average Kt/V was 1.26 (1.02 - 1.62) when the dialysate flow rate was reduced to 300ml/minute (see Table 1). The reduction of dialysate flow rate did not result in any change in any of the uremic symptoms (see Table 2). This intervention resulted in saving 480 liters of water per session and a total saving of 4320 liters of water over the three weeks period.

Conclusions : We can save a massive amount of water with no significant change in Kt/V or uremic symptoms by reducing the dialysate flow rate. A larger study with more patients and a longer duration of follow up is needed. Every drop counts for Pakistan and the world.

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Table 1: Summarizes the Average Kt/V and range of Kt/V of 10 Patients with a reduced dialysate flow rate 300ml/min and with standard dialysate flow rate 500ml/min.

Dialysate flow rate	Average KT/V	Range of KT/V
300ml/min	1.26	1.02-1.62
500ml/min	1.30	1.06-1.38



Table 2: Summarizes the uremic symptoms of 10 patients with a reduced dialysate flow rate of 300ml/min and a standard dialysate flow rate 500ml/min.

Dialysate Flow Rate	Nausea	Vomiting	Itching	Shortness of breath	Cramps	Altered Sleep
300ml/min	No	No	No	No	No	No
500ml/min	No	No	No	No	No	No