Dialysate Rate and Small Solute Clearance in Hospitalized Patients Requiring Intermittent Dialysis

Cleveland Clinic

9500 Euclid Avenue, Q7
Cleveland, OH
email: demirjs@ccf.org

Sevag Demirjian, Anne M. Huml, Michael W. George, Tracy Coates, J. Matthew Layne, Jonathan J. Taliercio.
Department of Kidney Medicine, Cleveland Clinic, Cleveland OH

Background

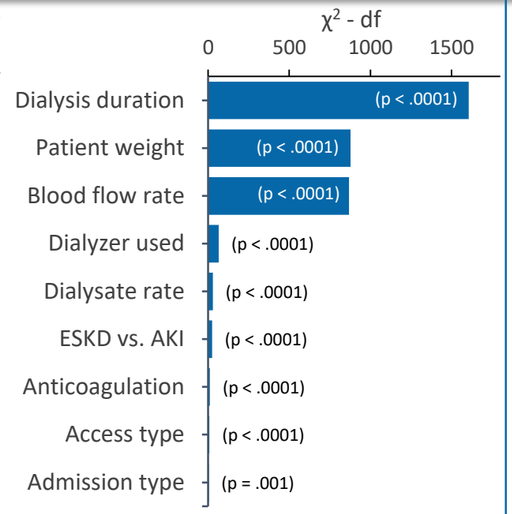
Conventional dialysis is a water hungry procedure.[1,2]
Savings in consumption and wastage are feasible without compromise in patient care[2].
We studied the determinants of urea clearance in hospital setting.

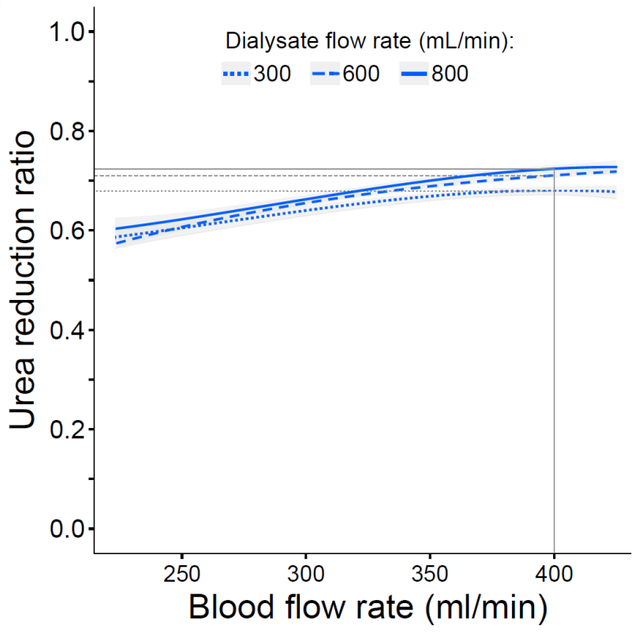
Methods

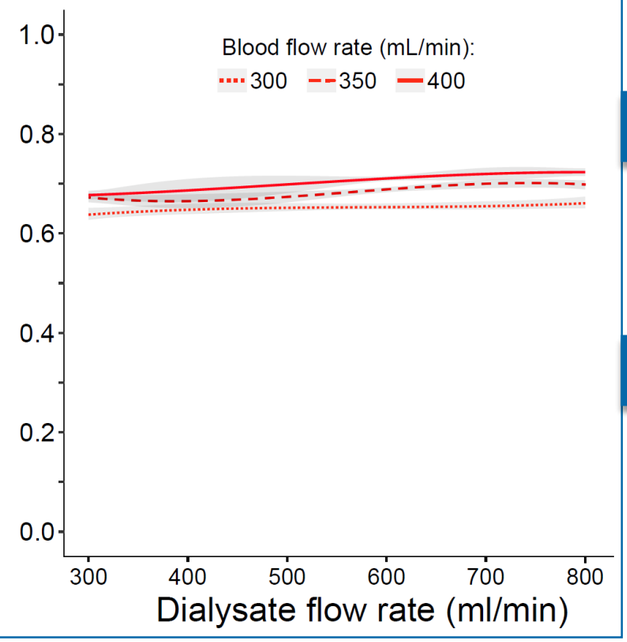
Mixed regression modeling was used where patient and hospitalization were considered random effects.
Fixed effects included admission, patient and dialysis level characteristics.
Risk factor significance was measured by computing the partial chi square statistic within the full model.

Results

Dialysate rate	300 mL/min	600 mL/min	800 ml/min
No. sessions	966	17492	1947
No. patients	228	3951	414
Weight (kg)	86 (33)	86 (32)	83 (28)
ESKD	52%	59%	60%
Surgery	31%	29%	31%
Qb delivered	350 (50)	400 (50)	400 (50)
Duration (min)	215 (45)	215 (40)	210 (35)
URR	0.68 (0.1)	0.70 (0.1)	0.70 (0.1)







Summary

Dialysis duration, and achieved blood flow were the most important modifiable factors of delivered URR.
An increase in dialysate rate from 300 to 600 mL/min was dependent on blood flow achieved with only modest change in URR (0.024).
Similar magnitude of change in URR (0.021) was observed with an increase in dialyzer size.

Conclusion

URR goals may be achieved with lower dialysate rates which will result in water and cost savings.

References

1. Sehgal AR, Slutzman JE, , Huml AM. JASN, 2022;33(9):1790–5.
2. www.cbsnews.com/news/mississippi-jackson-water-crisis-poses-severe-risk-to-dialysis-patients-it-could-literally-kill-him/
3. Leypoldt JK, Prichard S, Chertow GM, Alvarez L. Blood Purif. 2019;47(4):369-76.