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Dialysis Adequacy in Diabetic and Non-diabetic Patients on Maintenance Hemodialysis in Bangladesh

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INTRODUCTION

Multiple factors affect hemodialysis (HD) adequacy. Diabetes mellitus (DM) is the leading cause of end stage kidney disease worldwide. HD adequacy may vary in DM and non-DM patients due to multitude of factors.

METHODOLOGY

This cross-sectional study was performed in 3 HD centers across Bangladesh – Kidney Foundation, Dhaka, Sylhet and Pabna. Data was collected from 501 patients on HD for at least 3 months during May – June, 2023. Data was analyzed by statistical analysis software (SAS) studio.



Fig. Multivariate linear regression model showing the relationship between DM and HD adequacy, controlling for sex, HD duration, blood flow and UF volume (Single pool Kt/V in DM group = 1.29, non-DM group = 1.43, p = 0.0001)

RESULTS

Forty-eight percent of the patients were diabetic, 50% were female, 16% were employed. DM patients were significantly older compared to the non-DM patients (mean age 56.5 years vs 47.2 years, p < 0.0001) and were on HD shorter (mean duration 19.1 months vs 30.8 months, p < 0.0001). About 75% of all patients took twice-weekly HD, rest taking thrice-weekly HD. Interdialytic weight gain, pre-HD mean arterial pressure (MAP) and intra-HD MAP did not vary significantly in DM and non-DM patients (2.42 vs 2.4 kg, p = 0.8; 102.2 vs 104.2 mm Hg, p = 0.09; and 100.7 vs 102.5 mm Hg, p = 0.08). HD frequency did not vary between DM and non-DM patients. When HD adequacy was compared using Daugirdas's Kt/V single pool equation, adequacy was significantly lower in DM patients compared to non-DM patients (1.29 vs 1.43, p = 0.0003). The relationship persisted even after controlling for factors traditionally associated with affecting HD adequacy HD duration, blood flow rate, ultrafiltration volume and sex.

CONCLUSION

DM patients had significantly lower HD adequacy compared to non-DM patients. Underlying anthropometric, vascular and other possible etiological factors need to be evaluated.