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Clinical parameters predicting frailty in hemodialysis dependent patients

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Objectives: Frailty is commonly encountered in patients with end stage renal disease undergoing hemodialysis. This study was done to identify factors that could predict this.

Methods: This cross-sectional analytical study was carried out from October to December 2021. Patients undergoing maintenance hemodialysis for more than three months were selected using non-probability convenience sampling. Exclusion criteria included acute kidney injury, poor compliance to hemodialysis, limited physical mobility, acute infections and unwillingness. Frailty was assessed with Short Physical Performance Battery, and defined as scores less than 10. This was done before the start of the mid-week hemodialysis session. Hand grip strength was measured twice with a digital dynamometer and the best of the two recorded. Triceps skinfold thickness was measured with a standard caliper at the end of the same session. Other clinical parameters of interest were also noted down. Binary logistic regression was done to evaluate the relationship of different clinical parameters with frailty.

Results: There were 79 patients aged 51.86± 14.85 years, out of which 44 (55.70%) were males. Median hemodialysis vintage was 13 months (interquartile range 3- 33 months). Majority of the patients (68; 86.08%) were on twice a week hemodialysis schedule. Median hand grip strength was 12 kg (interquartile range 3- 27 kg). Mean thickness of triceps skin fold was 10.48± 4.99 mm. Median SPPB score was 8 (interquartile range 4- 11). Frailty was seen in 51 (64.56%) patients, as evidenced by SPPB scores

Conclusions: Increasing age and female gender were associated with frailty in our cohort. These subgroups of patients therefore require focused interventions to improve physical performance.

Utility of different clinical parameters to predict frailty

Parameter	Univariate regression		Multivariate regression	
Age	1.119 (1.062, 1.179)	<0.001	1.145 (1.068, 1.227)	<0.001
Gender *	4.833 (1.676, 13.940)	0.004	6.664 (0.888, 50.029)	0.065
HD vintage	1.015 (0.994, 1.037)	0.165	1.026 (0.992, 1.061)	0.134
HD frequency ^	6.585 (0.797, 54.440)	0.080	2.560 (0.235, 27.890)	0.441
Triceps	0.896 (0.811, 0.991)	0.032	0.918 (0.797, 1.056)	0.231
Hand grip strength	0.938 (0.907, 0.970)	<0.001	0.968 (0.919, 1.020)	0.225

Reference category: * Male, ^ Thrice a week

HD= haemodialysis