Inpatient Rehabilitation Outcomes in Haemodialysis Patients: An Analysis into Missed Therapy

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INTRODUCTION

Patients on haemodialysis (HD) are at higher risk of co-morbidities and deconditioning, necessitating inpatient rehabilitation to return to premorbid function and mobility. HD patients are known to have worse rehabilitation outcomes[1,2], however the reasons for this have not been explored previously.

AIM

To compare the percentage of missed therapies during inpatient rehabilitation between haemodialysis and non-haemodialysis patients, and to examine its relationship with length of stay (LOS) and functional independence measure (FIM).

METHODS

Retrospective cohort study of HD and non-HD patients admitted to an inpatient rehabilitation service between 1st January 2023 and 30th December 2023. Demographics, total therapies prescribed and missed, LOS, admission/discharge FIM and reasons for missing therapy were extracted from clinical records.

HD patient admissions were matched 1:1 to non-HD patients on age, sex and Australasian Rehabilitation Outcomes Centre (AROC). Results were summarised descriptively, and group differences were examined using Pearson's chi-square or Fisher's exact test and Mann-Whitney U test. Spearman's coefficient was used to measure correlation.

RESULTS

Twenty-six HD patients were matched to an equal number of non-HD patients. Overall mean age of the cohort was 67.7 (SD 11.1); 65.4% were males and the main reason for rehabilitation admission was for deconditioning (53.8%).

HD patients were offered more therapies per person compared to non-HD (median 24 vs 17, total: 652 vs 489). However, the percentage of therapy completion was lower for HD patients (88.5% vs 94.0%, p=0.17). HD patients missed more therapies per person than non-HD patients (5 (SD 3.3) vs 4 (SD 3.5), p=0.39). The percentage of missed therapy was moderately correlated with lower FIM change (-0.53) but weak correlation with LOS (0.18). HD patients had much higher rates of inpatient complications and transfers to acute hospital compared with non-HD patients.

Fatigue (50%) and pain (42.3%) were the most common reasons for missing therapy in HD patients, which were a barrier to participation in rehabilitation (figure 1).

Table 1: Patient characteristics

Characteristics	Haemodialysis	Non-Haemodialysis	p-value
Age (years)*	67.8 (11.8)	67.6 (10.5)	
Male gender, n (%)	17 (65.4)	17 (65.4)	
AROC impairment code category			
Deconditioning, n (%)	14 (53.8)	14 (53.8)	
Orthopaedic/fractures, n (%)	10 (38.5)	10 (38.5)	
Neurologic, n (%)	2 (7.7)	2 (7.7)	
Admission FIM score*	73.5 (13.5)	74.6 (20.3)	*0.82*
Discharge FIM score^	96 (79.75-103)	106 (79.3-115.3)	*0.12*
Number of therapies prescribed^	24 (13-30)	17 (11-25)	*0.18*

*mean (SD), ^median (IQR)

Figure 1: Barriers to participation in therapy in HD patients.

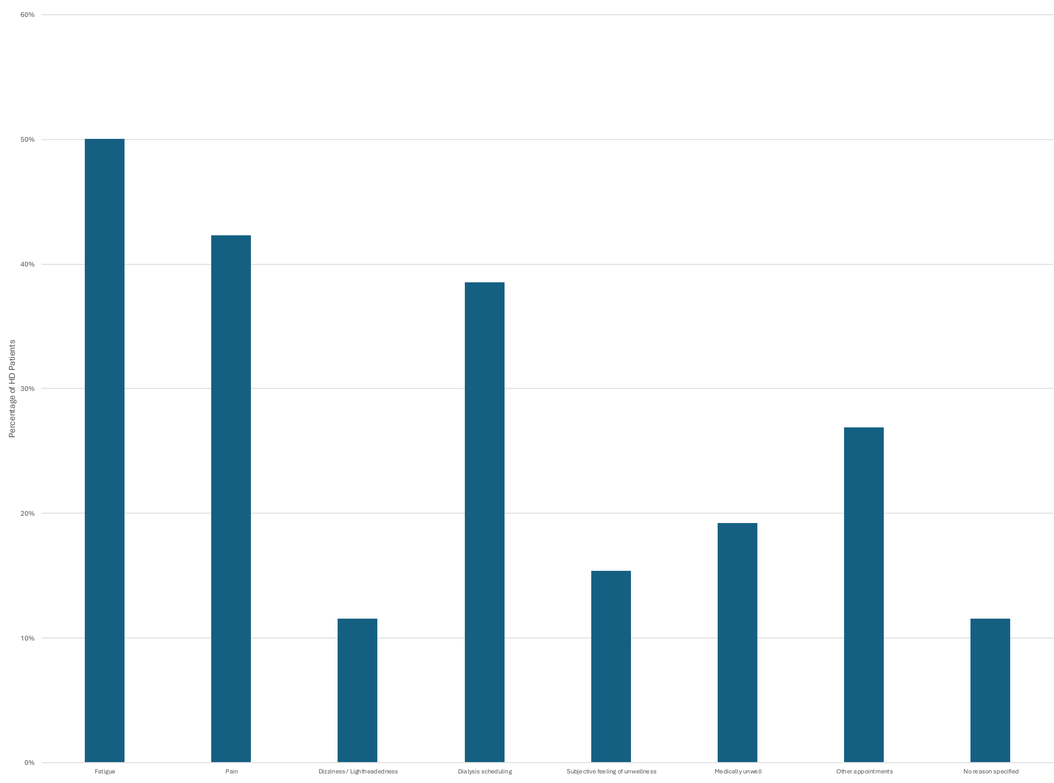

Table 2: Rehabilitation outcomes in HD vs non-HD patients

Outcomes	Haemodialysis	Non-Haemodialysis	p-value
Total no. of therapies prescribed	652	489	
Total no. of therapies missed	96	63	
Number of therapies missed per patient*	5 (3.3)	4 (3.5)	*0.39*
% of therapies completed per patient^	88.5	94	*0.17*
Rehab LOS^	16.8 (12.5-30.88)	16 (12.75-24)	*0.61*
Change in FIM^	24 (2-35)	27 (13-33)	*0.49*
FIM efficiency^	0.89 (0.07-2)	1.17 (0.66-2.04)	*0.332*
Inpatient complications, n(%)	16 (61.5)	8 (30.8)	*0.026*
Transfers to acute hospital, n (%)	8 (30.8)	3 (11.5)	*0.09*
Deceased during admission, n (%)	2 (7.7)	0 (0)	*0.49*

*mean (SD), ^median (IQR)

CONCLUSION

Patients on haemodialysis are less likely to complete prescribed allied health therapy during inpatient rehabilitation, which is likely linked to lower FIM change and FIM efficiency but interestingly has weak correlation with LOS. Patients on haemodialysis have significant symptom burdens as well as inpatient complications which likely affect ability to participate in inpatient rehabilitation. Further studies with larger cohorts are needed to confirm this correlation.

REFERENCES

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