

Disrupting the Connection between Hospice Admission and the Cessation of Dialysis Treatment

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ABSTRACT

Objective: To examine the latest trends and predictors utilization of hospice, ascertain the suitable hospice care duration, and investigate the discontinuation of dialysis without enrollment hospice among patients with end-stage renal disease.

Study Design A Prospective study

Place and Duration of Study: This study was conducted at the department of Medicine Nishtar hospital, Multan from January 2021 to December 2022.

Methods: A pre-designed questionnaire was utilized to gather comprehensive data on demographic characteristics, diagnoses, biochemical markers, clinical history, and claims patient's information with end-stage renal disease (ESRD). The final dataset consisted of 300 unique records for ESRD patients who had passed away during the study duration.

Results: The mean duration of hospice of enrolled hospice patients was greater than not enrolled hospice patients as 17.74 ± 4.94 days and 12.39 ± 4.58 days, respectively, ($p < 0.001$). Whereas, most of the not enrolled hospice patients had < 15 days of hospice care 75.9%.

Conclusion: Median hospice duration before death: 5 days; Elderly, and non-kidney transplant recipients more likely to enroll; Hospice duration increasing; Need for better coordination in ESRD and hospice care; Patients discontinuing dialysis without hospice likely need different interventions; Medicare barrier to hospice enrollment should dissolve post-dialysis cessation.

Key Words: Hospice, discontinuation of dialysis, End stage renal disease, Kidney transplant, Death

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INTRODUCTION

Hospice care for end-stage renal disease (ESRD) is an important aspect of managing the condition when curative treatments are no longer effective or desired. ESRD refers to the final stage of chronic kidney disease when the kidneys have lost most of their function¹. Patients with ESRD typically require dialysis or a kidney transplant to survive. However, when individuals with ESRD reach a point where further aggressive treatments are not beneficial or desired, hospice care becomes an option². Although inpatient palliative care utilization for addressing various needs in End-Stage Renal Disease (ESRD) and advanced

kidney disease has been steadily increasing, the utilization of hospice care presents a more intricate scenario³.

Analysis spanning from 2000 to 2014 revealed a rise in utilization hospice among patients of ESRD; however, the use of hospice remained lower in ESRD as compare to chronic diseases, with many experiencing stays of less than three days⁴. Multiple barriers contribute to the shorter length of stay in hospice and lower rates of hospice utilization among ESRD patients compared to those with other serious illnesses⁵, including the necessity to cease dialysis before hospice admission, limited provider awareness about benefits of hospice in dialysis patients, and cultural factors influencing patient preferences⁶.

Structural impediments, such as Medicare policies prohibiting dialysis payment by Medicare for ESRD patients with a primary hospice diagnosis⁷, absence of eligibility criteria for specific hospice for this population, and quality of dialysis care not prioritizing life's quality, further obstruct access to hospice care⁸. The predominant barrier lies in the policy-induced dilemma of choosing between hospice and dialysis care, complicating decision-making for ESRD patients, although the existence of a subgroup refraining from hospice even post-dialysis discontinuation suggests additional significant obstacles^{9,10}.

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The study underscores the importance of advance care planning discussions early in the disease trajectory. Patients with advanced kidney disease should have ongoing conversations with their healthcare providers about their treatment preferences, goals of care, and options for end-of-life care, including the possibility of concurrent dialysis and hospice services.

METHODS

Study was planned and preceded in the department of Medicine Nishtar hospital, Multan from January 2021 to December 2022 in two years time duration. Study approval was taken from institution and consent was obtained from patients and their family members. Contact numbers and addresses were taken. A pre-designed questionnaire was utilized to gather comprehensive data on diagnoses, demographic characteristics, clinical history, biochemical markers, and claims information of patients with end-stage renal disease (ESRD). The final dataset consisted of 300 unique records for ESRD patients who had passed away during the study duration. These records were meticulously compiled to provide a thorough understanding of the characteristics and circumstances surrounding the deaths of these individuals, allowing for detailed analysis and interpretation of the factors contributing to mortality in this population.

The study investigated several outcomes, hospice care duration, including hospice enrollment, and discontinuation of dialysis before death without enrollment in hospice. Hospice enrollment was determined using the variable "hospice admit date," while discontinuation of renal replacement therapy was defined by the variable "prior to death discontinuation of dialysis." Duration of hospice care was categorized as either adequate (15 days or more) or inadequate (less than 15 days), and hospice enrollment was categorized as 'yes' or 'no.' discontinuation of dialysis before death without enrollment in hospice was identified by combining the variables "hospice admit date" and "renal replacement therapy discontinued prior to death," resulting in a classification of 'yes' for those who discontinued renal replacement therapy without hospice enrollment and 'not applicable' for any other response combination.

The independent variables in the study encompassed age (categorized as 65 years or older versus younger than 65 years), gender (male versus female), hypertension (present versus absent), diabetes mellitus (present versus absent), cancer (present versus absent), COPD (present versus absent), alcohol dependence (present versus absent), drug dependence (present versus absent), absence of prior kidney transplant (present versus absent), and non-renal congenital abnormality (present versus absent). Additionally, newly devised variables included macrovascular disease, microvascular disease, and debilitation.

SPSS version 27 was used and test of significant were chi square test and logistic regression. P value below or equal to 0.05 was taken as significant.

RESULTS

Overall, 300 patients were included in our study, both genders, with mean age 65.44 ± 11.82 years. There were 170 (56.7%) males and 130 (43.3%) females. There were 11 (3.7%) patients, who received kidney transplant. In this study, 97 (32.3%) patients enrolled in hospice. The average duration of hospice care of all the patients was 14.12 ± 5.32 days. Most of the patients had <15 days of hospice care. Dialysis discontinued prior to death without hospice enrollment was observed in 35 (11.7%) patients. Hypertension, diabetes mellitus, debilitated, cancer, COPD, microvascular disease and renal congenital abnormality was noted in 192 (64.0%), 177 (59.0%), 175 (58.3%), 135 (45.0%), 155 (51.7%), 179 (59.7%) and 119 (39.7%) patients, respectively. (Table 1).

The mean duration of hospice of enrolled hospice patients was greater than not enrolled hospice patients as 17.74 ± 4.94 days and 12.39 ± 4.58 days, respectively, ($p < 0.001$). Whereas, most of the not enrolled hospice patients had <15 days of hospice care 154 (75.9%), ($p < 0.001$). Further, hypertension, diabetes mellitus, debilitated, cancer, COPD, microvascular disease and renal congenital abnormality was high in not enrolled hospice patients than enrolled hospice patients, ($p < 0.001$). (Table 2).

Debilitated, COPD, microvascular disease and renal congenital abnormality was in <15 days duration of hospice care patients than ≥ 15 days duration of hospice care patients, ($p < 0.050$). (Table 3)

Table No. 1: Demographic and baseline characteristics of the study patients

Characteristic	Presence
Age (years)	65.44 ± 11.82
≤65	160 (53.3)
>65	140 (46.7)
Gender	
Male	170 (56.7)
Female	130 (43.3)
Received a kidney transplant	
Yes	11 (3.7)
No	289 (96.3)
Enrolled in hospice	
Yes	97 (32.3)
No	203 (67.7)
Duration of hospice care(days)	
Mean±S.D	14.12 ± 5.32
<15	194 (64.7)
≥15	106 (35.3)
Discontinuation of dialysis before death without enrollment in hospice	
Yes	35 (11.7)

No	265 (88.3)
Hypertension	
Yes	192 (64.0)
No	108 (36.0)
Diabetes mellitus	
Yes	177 (59.0)
No	123 (41.0)
Debilitated	
Yes	175 (58.3)
No	125 (41.7)
Cancer	
Yes	135 (45.0)
No	165 (55.0)
COPD	
Yes	155 (51.7)
No	145 (48.3)
Microvascular disease	
Yes	179 (59.7)
No	121 (40.3)
Renal congenital abnormality	
Yes	119 (39.7)
No	181 (60.3)
Mean±S.D, N (%)	

Table No. 2: Association of enrolled in hospice with demographic and baseline characteristics

	Enrolled in hospice		p-value
	Yes 97 (32.3%)	No 203 (67.7%)	
Age (years)	64.71±11.42	65.79±12.01	0.455
≤65	56 (57.7)	104 (51.2)	0.291
>65	41 (42.3)	99 (48.8)	
Gender			
Male	52 (53.6)	118 (58.1)	0.460
Female	45 (46.4)	85 (41.9)	
Received a kidney transplant			
Yes	4 (4.1)	7 (3.4)	0.711
No	93 (95.9)	196 (96.6)	
Duration of hospice care (days)			
Mean±S.D	17.74±4.94	12.39±4.58	<0.001
<15	40 (41.2)	154 (75.9)	<0.001
≥15	57 (58.8)	49 (24.1)	
Discontinuation of dialysis before death without enrollment in hospice			
Yes	11 (11.3)	24 (11.8)	0.903
No	86 (88.7)	179 (88.2)	
Hypertension			
Yes	37 (38.1)	155 (76.4)	<0.001
No	60 (61.9)	48 (23.6)	
Diabetes mellitus			
Yes	32 (33.0)	145 (71.4)	<0.001
No	65 (67.0)	58 (28.6)	
Debilitated			
Yes	30 (30.9)	145 (71.4)	<0.001
No	67 (69.1)	58 (28.6)	

Cancer			
Yes	16 (16.5)	119 (58.6)	<0.001
No	81 (83.5)	84 (41.4)	
COPD			
Yes	13 (13.4)	142 (70.0)	<0.001
No	84 (86.6)	61 (30.0)	
Microvascular disease			
Yes	14 (14.4)	165 (81.3)	<0.001
No	83 (85.6)	38 (18.7)	
Renal congenital abnormality			
Yes	9 (9.3)	110 (54.2)	<0.001
No	88 (90.7)	93 (45.8)	
Mean±S.D, N (%)			

Table No. 3: Association of duration of hospice care with demographic and baseline characteristics

	Duration of hospice care (days)		p-value
	<15 194 (64.7%)	≥15 106 (35.3%)	
Age (years)	65.29±11.68	65.71±12.13	0.772
≤65	105 (54.1)	55 (51.9)	
>65	89 (45.9)	51 (48.1)	
Gender			
Male	113 (58.2)	57 (53.8)	0.455
Female	81 (41.8)	49 (46.2)	
Received a kidney transplant			
Yes	5 (2.6)	6 (5.7)	0.174
No	189 (97.4)	100 (94.3)	
(days)			
Discontinuation of dialysis before death without enrollment in hospice			
Yes	26 (13.4)	9 (8.5)	0.205
No	168 (86.6)	97 (91.5)	
Hypertension			
Yes	130 (67.0)	62 (58.5)	0.142
No	64 (33.0)	44 (41.5)	
Diabetes mellitus			
Yes	122 (62.9)	55 (51.9)	0.064
No	72 (37.1)	51 (48.1)	
Debilitated			
Yes	126 (64.9)	49 (46.2)	0.002
No	68 (35.1)	57 (53.8)	
Cancer			
Yes	92 (47.4)	43 (40.6)	0.254
No	102 (52.6)	63 (59.4)	
COPD			
Yes	113 (58.2)	42 (39.6)	0.002
No	81 (41.8)	64 (60.4)	
Microvascular disease			
Yes	130 (67.0)	49 (46.2)	<0.001
No	64 (33.0)	57 (53.8)	
Renal congenital abnormality			

Yes	87 (44.8)	32 (30.2)	0.013
No	107 (55.2)	74 (69.8)	
Mean±S.D, N (%)			

DISCUSSION

The study examined clinical and sociodemographic factors associated with enrollment in hospice and duration of hospice care among ESRD patients in Pakistan between 2012 and 2013, revealing that while hospice enrollment was prevalent, a significant portion of patients opted for renal replacement therapy discontinuation without hospice care. Additionally, findings indicated a median hospice care duration of 5 days, with a standardized increase in hospice care duration observed over time, and identified elderly, White, and non-kidney transplant recipients as demographics more inclined to enroll in hospice.

According to Watcherman et al¹¹ study based on USRDS data, utilization of hospice among ESRD died was estimated to be 20%. This finding aligns with prior research indicating a consistent, albeit gradual, rise in hospice utilization among ESRD patients dating back to the year 2000¹².

Wetmore et al¹³ and Hussain et al¹⁴ have reported that several factors are associated with dialysis withdrawal. These include older age, female gender, white race, and originating from a rural setting. Additionally, factors crucial to physical independence, such as a history of cerebrovascular disease, have also been identified as significant contributors to the decision to withdraw from dialysis treatment.

Between 2012 and 2019, Soipe et al¹⁵ found that about 1 in every 4 ESRD patients with history of hospice enrollment and died, while one in every twelve patients who discontinued dialysis prior death without enrollment in hospice, with an upward trend observed in the standardized duration of hospice care. Brown et al¹⁶ reported that Medicaid patients exhibit less suitable track for the proxy of disability score and for acute medical events, while in the general population, conflicting literature exists regarding the association between lower socioeconomic status and end-of-life care, with some studies suggesting higher intensity of care and others paradoxically indicating increased utilization of palliative care consultative services.

Romero et al¹⁷ found that patients receiving dialysis who enroll in hospice typically have shorter lengths of stay compared to the general Medicare population, with an average of 8 days versus 20 days, and nearly half of them are not enrolled in hospice until the last 3 days of life. In a study conducted by Schell et al¹⁸ it was found that the median length of hospice care for dialysis patients is notably shorter at 5 days, in stark contrast to the 17.4 days observed for the general Medicare population. Additionally, nearly half of the dialysis patients receiving hospice services did so for 3 days or fewer, and they were just as likely to be hospitalized in

the last month of life as those who did not utilize hospice care.

Holley et al¹⁹ and Murphy et al²⁰ revealed that approximately one out of every twelve ESRD patients opted to discontinue renal replacement therapy prior to their demise without enrolling in hospice care. In the past, "withdrawal from dialysis" was recorded as a cause of death in ESRD patients' death notification forms, whereas "dialysis discontinuation" was not universally recognized as an interchangeable term by nephrologists.

CONCLUSION

Median hospice duration before death: 5 days; Elderly, and non-kidney transplant recipients more likely to enroll; Hospice duration increasing; Need for better coordination in ESRD and hospice care; Patients discontinuing dialysis without hospice likely need different interventions; Medicare barrier to hospice enrollment should dissolve post-dialysis cessation.

Author's Contribution:

Concept & Design of Study:	Ghulam Mustafa
Drafting:	Feras Almarshad
Data Analysis:	Feras Almarshad
Revisiting Critically:	Ghulam Mustafa
Final Approval of version:	By all above authors

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