

FREQUENCIES OF VARIOUS FACTORS CAUSING EARLY SIGN OFF AND NO SHOWS DURING DIALYSIS

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ABSTRACT

Objective: To determine various factors associated with poor dialysis compliance as evident by early signoff and no shows.

Study Design: Descriptive study.

Place and Duration of Study: Nephrology department at Pak Emirates Military Hospital Rawalpindi, from Feb 2012 to Jan 2013.

Material and Methods: A standardized proforma was formulated which was to be filled by dialysis staff each time a patient refused dialysis, absented "No show" or had premature termination of dialysis session against the medical advice, "early sign off" due to any cause. This data was compiled centrally on monthly basis and patients were counseled by doctors to evaluate the cause and various factors for early sign off and no shows. Using Non probability convenience sampling 364 dialysis sessions were included in our study. Data was analysed using SPSS version 20 and frequencies were calculated for various factors associated with early termination or absence altogether from dialysis.

Results: A total of 11232 dialysis sessions were followed during study period. Amongst total of 364, 320 (88%) dialysis were terminated prematurely (Early sign off) while 44 (12%) dialysis sessions were missed out completely (no shows). Febrile reaction was most frequent factor causing early sign off n=97 (27%). Cramps were second most common factor for early sign offs n=70 (19%). Other factors like Symptomatic arrhythmias, non-specific body aches, AV access site pain and socio economic issues also had contributions but less than 10% each.

Conclusion: Poor hemodialysis compliance indicated by early sign offs and no show is fairly common problem in our community. Febrile reactions, cramps, poor education and hemodynamic instability are major contributory factors. These issues need to be addressed urgently to save a large population from life threatening complications and poor dialysis compliance. Identifying these complications and addressing them can ensure better compliance and likely will contribute to long term survival benefit.

Keywords: Compliance, Complications, Dialysis, Dialysis adequacy, Hemodynamic instability.

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INTRODUCTION

Successful hemodialysis depends on four factors: fluid restriction, adherence to dietary guidelines, and following medication prescriptions in true spirit, and regular attendance at hemodialysis sessions as prescribed by treating physician. Fluid restrictions can be as severe as a maximum 500 mL of fluid intake daily, depending on the residual diuresis. Patients receiving hemodialysis report extreme thirst, consider fluid adherence as distressing and often

embark on fluid and dietary binges which have cumulative effect. Prescribed dietary restrictions limit sodium, potassium, and protein intake. The goals of the medication regimen are to treat or prevent cardiovascular comorbidity conditions and keep a stable mineral blood balance, for instance by giving phosphate binders. This regimen consists of an average of 12 different drugs-Attendance at the prescribed dialysis sessions implies both regular attendance (no skipping of sessions) and full completion of the sessions^{1,2,18}.

Poor compliance is a major problem in all the chronic illnesses and same holds true for chronic kidney disease patients on hemodialysis as 1/3 of

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the cases do have some kind of compliance issues. Various factors are considered responsible for this problem. Doctors are over worked and they usually use lab data as indicator of patient compliance to dialysis. However lab data meets halfway as patient related physical and clinical issues and complaints usually go unnoticed resulting in poor compliance. Failure to identify factors resulting in suboptimal dialysis is a major concern world over. Promptly, Identifying these problems and addressing these factors can go a longway in ensuring dialysis compliance and adequacy leading to better health indicators in the long run^{3,4,20}. Our study is aimed at determining various factors associated with poor dialysis compliance as evident by early sign off and no shows.

PATIENTS AND METHODS

We carried out a descriptive study at Pak Emirates Military Hospital Rawalpindi, from feb 2012 to Jun 2013. The study included the patients undergoing hemodialysis at PEMH Rawalpindi, a tertiary care hospital which is providing dialysis facilities to a huge catchment area extending from KPK to Punjab and Azad Kashmir. The study was conducted after taking permission from the institutional ethical review board.

A standardized proforma was formulated which was filled by dialysis staff Nurse each time a patient refused dialysis against medical advice, absented or terminated dialysis prematurely against the prescribed orders due to any cause. All those patients who could not complete dialysis session as per doctor's advice (Early sign off) and who did not report for dialysis at all as per schedule (No shows) were included in our study. Early sign off was defined as patient who could not complete his dialysis session and went away earlier then prescribed time irrespective of the cause, No shows was defined as patients who did not come for their routine appointment of dialysis in compliance to medical prescription.

Name, age, sex, education status and reason for dialysis discontinuation/ absenting was entered in the proforma. Absenting patients were

contacted on telephone or interviewed latter on to find out the reason for absentee. This data was compiled centrally on monthly basis and patients were counseled by doctors to counter check the cause and counsel the patients regarding the information gathered. All patients underwent conventional hemodialysis with traditional membranes and a bicarbonate bath. Intra dialytic hypertension was defined as Systolic Blood pressure rise in BP of more than 30mmHg from base line, intra dialytic hypotension was defined as systolic Blood Pressure less than 90 mmHg at anytime during dialysis or fall in Systolic BP of more the 30mmHg. Febrile reaction was diagnosed if patient was documented to have fever more than 99°F or developed shivering during dialysis.

Reasons for no shows and early sign offs were also countersigned by patients. Patients having mental illnesses and privacy issues were excluded from our study. Patients who died due to some dialysis complication were also excluded. A total of 11232 dialysis sessions were followed during study period. Three hundred and sixty four dialysis fulfilled our inclusion criteria and were included in the study.

Data was entered and analyzed using SPSS version 20. Descriptive statistics were applied and frequencies were calculated for various complications and factors culminating in leaving dialysis session prematurely or not coming to dialysis unit at all⁷.

RESULTS

Major chunk of our study population left dialysis session earlier than anticipated as Out of 364, three hundred and twenty (88%) dialysis were terminated prematurely (early sign off), while only 44 (12%) dialysis were missed out completely (no shows). So major concern was early sign off.

Febrile reaction was most frequent factor causing early sign off. A total of 97 (27%) sessions ended prematurely because of febrile reactions. Muscle Cramps was another important factor responsible for 19% (n=70) of early sign offs.

These two factors made major bulk i.e., almost half of the early sign offs in total.

Hemodynamic instability was another issue resulting in compromised hemodialysis sessions. Both hypotension and hypertension were involved in early sign off at almost equal frequencies i.e. 26 (7.1%) and 24 (6.9%) respectively.

Education background of the dialysis patient

Entitlement to free medical facilities was also having bearings on dialysis compliance. In our hospital Entitled patients are given free of cost treatment and private patients have to pay for the services provided. This Private patients were more likely (almost double the size) to end up in early signoff and no shows 68% vs. 32% for Entitled patients.

Table-I: Types of interruption during dialysis.

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Early Sign off	320	87.9	87.9	87.9
	No show	44	12.1	12.1	100.0
	Total	364	100.0	100.0	

Table-II: Reasons for premature dialysis termination.

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Febrile Reaction	97	26.6	26.6	26.6
Cramps	70	19.2	19.2	45.9
Non Specific Bodyaches	58	15.9	15.9	61.8
Hypotension (Intradialytic)	26	7.1	7.1	69.0
Hypertension (Intradialytic)	24	6.6	6.6	75.5
Symptomatic Arrhythmias	20	5.5	5.5	81.0
Financial issues	20	5.5	5.5	86.5
AV access site pain	15	4.1	4.1	90.7
Transport related issues	15	4.1	4.1	94.8
Pain at site other then AV access	8	2.2	2.2	97.0
DDS	7	1.9	1.9	98.9
staff attitude issues	4	1.1	1.1	100.0
Total	364	100.0	100.0	

Table-III: Effect of Entitlement status effect on dialysis compliance.

Count	Patients Status	Type of Interruption		Total
		Early Sign off	No Show	
	Entitled	216	32	248
	Private patients	104	12	116
	Total	320	44	364

had some interesting implications in our study as less educated people (under matric) was more likely to end up in early sign offs. A significant proportion of our study population i.e. 68% were under matric while only 32% were matriculate and above. So poor educational status emerged as significant risk factor associated with poor dialysis compliance.

Gender distribution effect also highlighted in our study as female patients were more likely to call for early sign off and no shows compared to male gender 55% vs. 45% respectively.

Other factors like symptomatic arrhythmias, nonspecific body aches, AV access site pain and socio economic issues also had contributions but there contribution was very low if not negligible

as they were individually responsible for less than 10% of Early sign off and No shows.

DISCUSSION

Pakistan is a third world country and has

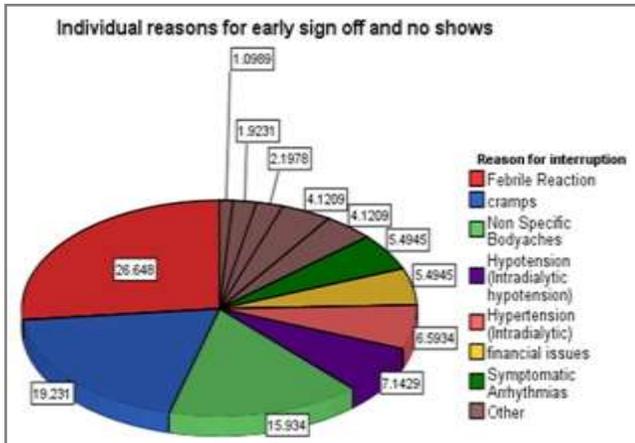


Figure-1: Contribution of various factors towards no show and early sign off.

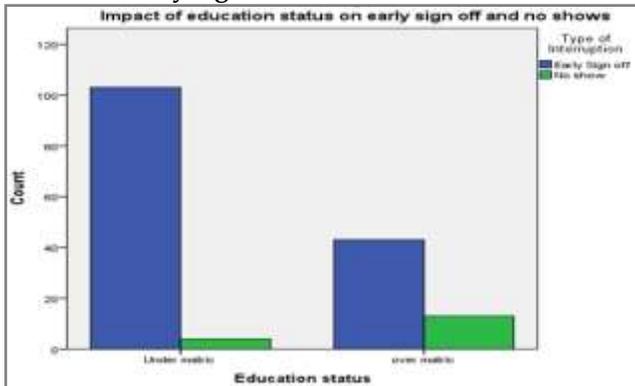


Figure-2: Impact of education status on early sign off and no show.

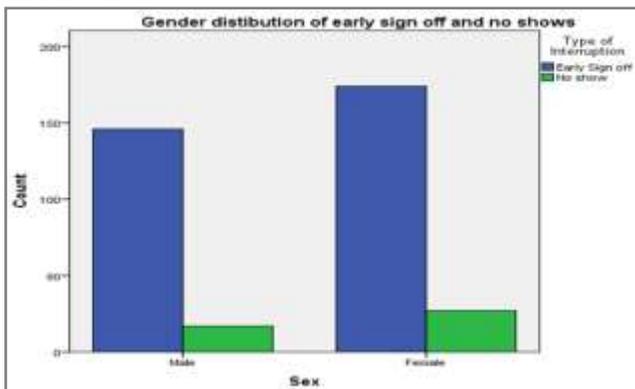


Figure-3: Gender distribution of early sign off and no shows.

multiple social, financial and health related problems. This picture further complexes by very

high prevalence of hypertension and diabetes mellitus as changing life styles and Urbanization has caused alarming spike in the afore mentioned health related issues. Burden of these disease further multiplies exponentially when above mentioned illnesses end up in complications like CRF. An under developed country like Pakistan is facing uphill task in addressing these issues. The picture gets darker when already meager health resources are not utilized to their capacity and gets wasted.

Hemodialysis is one such very costly life sustaining treatment modality. Its the need of time that maximum number of people benefit from it by utilizing it in the best possible way. Addressing the issues of Early sign off and No shows as a result of various dialysis complications can go a long way in achieving this goal. By identifying frequencies of these problems and taking measures to address them will dampen the sufferings of an ever growing and under privileged patient group. The recent economic pressures over the country is likely to influence the health of dialysis patient negatively. Surprisingly little research has been carried out in our country regarding this critical issue.

A high proportion of hemodialysis patients in Pakistan had difficulty in following diet and fluid restriction as well as Dialysis prescription. This finding is consistent with the range of compliance behaviors reported in other studies among dialysis patients in Asian countries⁴. Compared to a study conducted in Hong Kong our compliance rates regarding dialysis were similar, but poorer than European population⁵.

Dialysis related complications such as Intra dialytic leg cramps, Dialysis disequilibrium syndrome (DDS) and hemodynamic instabilities (Intra dialytic Hypo/hypertension) were significant concerning issues in our study, as is the case in most of the world literature⁶. However individual contribution of various factors differed. In our study, contrary to world literature, febrile reaction was most common cause for early Sign off. This difference may be

result of lower education status and less hygienic practices in our society. People with lower educational standards may not understand the importance of infection control and poor hygiene resulting in increased prevalence of infections in our community. Line sepsis is naturally bound to cause more febrile reactions.

Effects of gender is not in keeping with European studies as no shows and early sign off occur equally in both sexes in western communities. However in eastern communities where females are relatively un educated and dependent on males, female were more likely to be non-compliant with dialysis prescription. This fact is reflected in our study by relatively high occurrence of early sign off and no shows in female population. In patients undergoing dialysis, there are increased chances that the renal inflammation is accelerated, leading to a battery of complications. Although the causes of inflammation are multifactorial, as discussed earlier, they also depend greatly on the membrane biocompatibility and the quality of dialysate fluid. During dialysis, there is a possibility of the retention of inflammatory products, the development of oxidative stress, and the complement system activation leading to febrile reactions and pre mature end to dialysis session^{7,8}.

The occurrence of ventricular arrhythmias in dialysis patients have been evaluated by cardiac monitoring and holter monitoring repeatedly. These arrhythmias are common during dialysis and between treatments; the published frequency ranges widely, from 5 to 75% Supraventricular arrhythmias are also common during hemodialysis, the incidence of arrhythmias may be enhanced because of rapid fluctuations in hemodynamics and electrolyte concentrations, as well as the induction of hypoxemia in patients with a high incidence of myocardial disease⁹, However arrhythmias were not a major issue in dialysis patient. In our study less than 5% of dialysis were stopped because of arrhythmias which is in keeping with world literature¹⁰.

Bodyaches is another important factor resulting in compromised dialysis compliance. The reasons for bodyaches are multiple and difficult to treat. Longer treatment times and/or ultrafiltration in association with a large degree of solute removal significantly enhance the incidence of headache, nausea, and vomiting during dialysis¹¹ E) International literature reports bodyaches in upto 5% of population which is in keeping with our study having figure of around 4%¹²⁻¹⁵.

In another study carried out by Liabeuf Sand, Sajjad *et al*¹⁵ it was observed that Symptomatic patients had significantly lower pre-dialysis systolic blood pressures (137mmHg compared with 146 mmHg $p<0.0001$) and demonstrated a greater per cent drop in their systolic blood pressure (delta systolic) before and after dialysis (9.7% vs. 4.1% $p<0.0001$). There percentages of hemodynamic instability were slightly higher 9.7% compared to our study where hypotension was observed in just under 7% of population studied^{14,20}.

CONCLUSION

Poor hemodialysis compliance is fairly common problem in our community as evidenced by high rates of no shows and early sign offs. Febrile reactions, cramps, poor education standards and hemodynamic instability are major contributory factors .By addressing these issues a large number of patients can be saved from life threatening complications and poor dialysis compliance can be reduced. This can logically enhance general health of the dialysis patients.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any authors.

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