

A Study of substance abuse among chronic kidney disease patients having psychiatric illness undergoing haemodialysis

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Abstract

Objective: The objective of the present study was to explore the study of substance abuse among chronic kidney disease patients having psychiatric illness undergoing haemodialysis.

Method: This study enrolled 130 chronic renal disease patients undergoing haemodialysis with Psychiatric morbidity. Psychological characteristics were assessed with the Mini-International Neuropsychiatric Interview, Life Events Scale and Karl Fagerstrom Nicotine Tolerance Questionnaire were used to analyze the models.

Results: The male patients diagnosed with psychiatric illness, most (n=28, 21.53%) had a co morbid alcohol abuse in the past and seven male patients (5.38%) did not exhibit co morbid alcohol abuse. On comparing patients with and without psychiatric illness and their alcohol history, there is a significant association ($p < .001$) between alcohol abuse and psychiatric illness. The mean duration of renal dysfunction [4.36+ 5.28] was compared with mean duration of alcohol abuse [19.76 + 10.53] and it was observed that the difference in mean age is difference is statistically highly significant ($p = <0.001$). 27.69% patients (n=36) had no co morbid tobacco abuse. Three patients (2.3%) reported to be abusing tobacco currently. The mean duration of smoking 21.76 + 10.53 was compared with mean duration of Renal dysfunction [4.36+ 5.28] and it was observed that the difference in mean duration is statistically significant ($p = <0.001$). On comparing patients with and without psychiatric illness and other substance abuse and their duration, no significant association was found.

Conclusion: The prevalence of substance abuse observed in our sample appears to be an important finding which might contribute to evaluate the role in the path physiology of CKD.

Keywords: Dialysis, chronic renal failure, psychological factors

1. Introduction

Numerous psychiatric issues could be seen in patients with chronic kidney disease (CKD). Haemodialysis is a renal substitution treatment causes different psychiatric issues. Haemodialysis is the most preferred treatment method for CKD. However, it has been insisted that a number of restrictions and modifications accompany this treatment, which have a ruinous impact on the quality of patient's life and affect individual's psychological and physical well-being. Chronic kidney disease (CKD) although primarily a physical illness, it has noteworthy psychiatric sequel. Patients in dialysis are incompetently dependent on a dialysis unit and medical professionals [1]. Dialysis as a system is distressing for the patient in the occasion of lacking training and readiness with respect to pre-end-stage renal ailment (ESRD). There is additionally an extensive limitation on the choice of food and liquids. Patients on peritoneal dialysis have some scope with

respect to this contrasted with patients on haemodialysis. Patients with renal failure regularly experience the ill effects of numerous other medicinal conditions and are on numerous diverse prescriptions.[2-4] The time of change happens over weeks and months and may be contrasted to a distress response with depressive side effects here and there creating as a major aspect of this technique [5] Daily drinking of 4 or more servings, especially when combined with smoking, was independently associated with increased CKD risk in another American population (defined as estimated glomerular filtration rate [eGFR] $< 60 \text{ mL/min/1.73 m}^2$) [6]. Further, alcohol consumption of 30 g or more daily was associated with an increased risk of albuminuria [7]. Consumption of three or more drinks per day was associated with a decreased level of serum creatinine (SCr), but that consumption of two or fewer drinks daily was associated with a higher level of SCr [8]. The patients who are undergoing peritoneal dialysis with

a history of smoking have increased morbidity. An aggressive smoking cessation effort by these patients needs to be taken at the earliest [9,10].The severe alcohol abuse predisposes to acute renal failure and seems to be associated with the general catabolic effects [11].The factors associated with CKD in a population-based cohort study with emphasis on smoking and consumption of alcohol. They found that smoking and excessive alcohol consumption, such as consuming of four or more drinks per day, were associated with CKD, despite of several important confounders. The rates of substance abuse disorders and psychotic disorders were higher than community averages, but that was anticipated because of the relationship between the cause of kidney disease and substance abuse and the known prevalence of psychiatric disorders in patients who have ESRD and are treated with Hemodialysis.[12]

Materials and Methods

All patients who underwent dialysis procedure in Sri Ramachandra Medical Centre during the period January to June 2010.

Inclusion criteria

Patient who have been diagnosed to have CKD by the nephrologists and are undergoing dialysis in Sri Ramachandra Medical Centre. Either the patient or his relatives who had given informed consent for the study.

Exclusion criteria

Patient previously diagnosed for mental illness prior to the onset of chronic kidney disease. Patients having mental retardation were excluded. Patient or relatives who refused to give consent to the study. Patient who were dangerously ill and who had very poor medical condition were excluded.

Materials

Patients and relatives were interviewed in the dialysis unit of Sri Ramachandra Medical Centre. A semi structured proforma was designed for the purpose of the study. It has been utilized to gather information on the demographic details, duration of CKD, Mental illness, past medical and psychiatric history, substance abuse, family history, physical examination, mental status examination, laboratory parameters.

M.I.N.I 6.0 was used as a screening tool to diagnose mental illness in those patients. The Mini-International Neuropsychiatric Interview (M.I.N.I.) is a short structured diagnostic interview. Developed jointly by psychiatrists and clinicians in the United States and Europe, it is a screening tool to detect psychiatric illness for DSM-IV psychiatric disorders. With an administration time of approximately 15 minutes, it was designed to meet the

need for a short but accurate structured psychiatric interview for multicenter clinical trials and epidemiology studies.

Life Events Scale: Adapted from Holmes-Rahe Social Readjustment Rating Scale. This assessment measures the amount of change, using Life Change Units, a person experienced and adjusted to in the previous 12 months. This scale indicates that change in one's life requires an effort to adapt and then an effort to regain stability. This assessment considers only the events that occurred, not individual perception of these events in life. Score of 300+: At risk of illness. Score of 150-299+: Risk of illness is moderate. Score 150-: Only have a slight risk of illness.

Karl Fagerstrom Nicotine Tolerance Questionnaire: A 6 item questionnaire which has a total of score of 10, it is used to assess the level of nicotine dependence, where 0-3 is low, 4-6 is medium and 6-10 is high dependence [13-18].

Methods

Samples were collected from Dialysis Unit, Department of Nephrology, Sri Ramachandra medical centre, Sri Ramachandra University. Those cases which were diagnosed as Chronic Kidney disease were undergoing haemodialysis were included in the study. Informed consent was obtained from the patients or caregivers after explaining the rationale and purpose of the study. Socio-demographic details, duration of CKD, past medical and psychiatric history, substance abuse, family history, physical examination, mental status examination, laboratory and imaging parameters were collected using the semi structured proforma. All patients were administered M.I.N.I international neuropsychiatric interview as a screening tool to evaluate the presence of any psychiatric illness. All patients were administered Life events scale to assess the life change units. Patients who had a history of alcohol abuse were administered AUDIT and people who abused Tobacco were administered Fagerstrom Tolerance Questionnaire to evaluate the dependence. After diagnosis, patients were further administered individual rating scales based on the symptoms or diagnosis.

Statistics

All data collected through the proforma and the rating scales were tabulated and analyzed with the help of the university statistician using SPSS (Statistical Package for social Sciences) Statistics 18. Chi square test have been used test the significance of categorical or count data and T-test was used to test the significance of measurement data, Results are presented as mean \pm SD throughout the document unless otherwise stated. The default level of significance was set $p=0.05$.

Results and Discussion

Alcohol Abuse

Table 1: Alcohol abuse & psychiatric illness distributed by gender

Alcohol abuse	Male Psychiatric illness		Female Psychiatric illness		Total	Chi Square	P Value
	Present	Absent	Present	Absent			
Yes	1 (0.76%)	(0%)	(0%)	(0%)	1 (0.77%)		
No	7(5.38%)	32(24.61%)	16(12.3%)	33(25.38%)	88(67.69%)	21.813	.000*
Past	28(21.53%)	13 (10%)	(0%)	(0%)	41(31.54%)		
Total	36(27.69%)	45(34.61%)	16(12.3%)	33(25.38%)	130(100%)		

* Significant

Table 2: Duration of alcohol abuse and psychiatric illness

Duration of Alcohol abuse	Psychiatric Illness			Chi Square	P Value
	Present	Absent	Total		
<5 years	1 (0.76%)	1 (0.76%)	2 (1.53%)		
5 - 10 years	3 (2.3%)	3 (2.3%)	6 (4.61%)	2.719	.437
>10 - <15 years	3 (2.3%)	0 (0%)	3 (2.3%)		
>15 years	9 (6.92%)	9 (6.92%)	18(13.84%)		
Total	16 (40%)	13 (60%)	29 (100%)		

Table 3: Frequency of alcohol abuse and psychiatric illness

Frequency of alcohol abuse	Psychiatric Illness			Chi Square	P Value
	Present	Absent	Total		
Daily	3 (2.3%)	5 (3.84%)	8 (6.15%)		
1-2 per week	6 (4.61%)	2 (1.53%)	8 (6.15%)		
Weekly	2 (1.53%)	4 (3.07%)	6 (4.61%)	4.187	.242
Once a Month	5 (3.84%)	2 (1.53%)	7 (5.38%)		
Total	16 (40%)	13 (60%)	29 (100%)		

Table 4: Duration of alcohol abuse with duration of renal dysfunction

Parameters	N	Mean [SD]	Paired Differences	t test	P Value
Duration of renal dysfunction	29	4.36+ 5.28	-15.39 + 11.82	-7.012	.000*
Duration of alcohol abuse	29	19.76 + 10.53			

Table 5: Tobacco abuse & psychiatric illness

Tobacco abuse	Psychiatric Illness			Chi Square	P Value
	Present	Absent	Total		
Yes	3 (2.3%)	1 (0.76%)	4 (3.07%)		
No	36(27.69%)	61(46.92%)	97(74.61%)	2.660	.264
Past	13 (10%)	16 (12.3%)	29 (22.3%)		
Total	52 (40%)	78 (60%)	130 (100%)		

31.54%patients of the total sample (n=41) had a past history of alcohol abuse. One patient continues to abuse alcohol occasionally even after the onset of renal disease. None of the females had history of alcohol abuse. Among the male patients diagnosed with psychiatric illness, most (n=28, 21.53%) had a co morbid alcohol abuse in the past and seven male patients (5.38%) did not exhibit co morbid alcohol abuse. one patient with depression was a current alcohol abuser. On comparing patients with and without psychiatric illness and their alcohol history, there

is a significant association (p<.001) between alcohol abuse and psychiatric illness.(Table 1)

Majority of the patients with psychiatric diagnosis had history of alcohol abuse for more than 15 years (Table 2). On comparing patients with and without psychiatric illness and their duration and frequency of alcohol abuse, no significant association between the two variables was found (Table 3).

The mean duration of Renal dysfunction [4.36+ 5.28] was compared with mean duration of alcohol abuse

Table 6: Duration of tobacco abuse & psychiatric illness

Duration of Tobacco abuse	Psychiatric Illness			Chi Square	P Value
	Present	Absent	Total		
<5 years	1 (0.76%)	1 (0.76%)	2 (1.53%)	2.400	.494
5 - 10 years	4 (3.07%)	4 (3.07%)	8 (6.15%)		
>10 - <15 years	2 (1.53%)	0 (0%)	2 (1.53%)		
>15 years	9 (6.92%)	12(9.23%)	21(16.15%)		
Total	16 (40%)	17 (60%)	33 (100%)		

Table 7: Duration of smoking and duration of renal dysfunction

Parameters	N	Mean [SD]	Paired Differences	t test	P Value
Duration of renal dysfunction	33	4.23+ 5.28	-17.52 + 13.08	-7.798	.000*
Duration of smoking	33	21.76 + 10.53			

Table 8: Other substance abuse & psychiatric illness

Other substance abuse	Psychiatric Illness			Chi Square	P Value
	Present	Absent	Total		
Yes	1 (0.76%)	1 (0.76%)	2 (1.53%)	.877	.645
No	48(36.92%)	69(53.07%)	117 (90%)		
Past	3 (2.3%)	8 (6.15%)	11 (8.46%)		
Total	52 (40%)	78 (60%)	130 (100%)		

Table9: Duration of other substance abuse & psychiatric illness

Duration of other substance abuse	Psychiatric Illness			Chi Square	P Value
	Present	Absent	Total		
5 - 10 years	1 (0.76%)	1 (0.76%)	2 (1.53%)	.481	.786
>10 - <15 years	1 (0.76%)	2 (1.53%)	3 (2.3%)		
>15 years	2 (1.53%)	6 (4.61%)	8 (6.15%)		
Total	4 (40%)	9 (60%)	13 (100%)		

Table 10: Duration of smoking and duration of renal dysfunction

Parameters	N	Mean [SD]	Paired Differences	t test	P Value
Duration of renal dysfunction	33	4.23+ 5.28	-17.52 + 13.08	-7.798	.000*
Duration of smoking	33	21.76 + 10.53			

[19.76 + 10.53] (Table 4) and it was observed that the difference in mean age is difference is statistically highly significant (p = <0.001).

Tobacco Abuse

29 patients (22.3%) of the total sample had a past history of tobacco abuse (Table 5). Females did not report to have a history of tobacco abuse.

Among the patients diagnosed with psychiatric illness. 27.69% patients (n=36) had no co morbid tobacco abuse. Three patients (2.3%) reported to be abusing tobacco currently. On comparing patients with and without psychiatric illness and their tobacco history, no significant

association was found. Comparing patients with and without psychiatric illness and their duration of tobacco abuse, no significant association between the two variables (Table 6)

The mean duration of smoking 21.76 + 10.53was compared with mean duration of Renal dysfunction [4.36+ 5.28] (Table 7) and it was observed that the difference in mean duration is statistically significant (p = <0.001).

Other Substances

No other substance abuse was noticed in majority of the patients with renal dysfunction (n=117, 90%). There was a

past history of other substance abuse in 8.46% of patients (n=13) (Table 8). Most of these other substances included beetle nut chewing, Pan Abuse and Mava. No abuse of benzodiazepines, solvents, cannabis, cocaine, opiates, ecstasy and other amphetamines were reported. On comparing patients with and without psychiatric illness and other substance abuse and their duration, no significant association was found (Table 9)

Tobacco Abuse

29 patients (22.3%) of the total sample had a past history of tobacco abuse (Table 5). Females did not report to have a history of tobacco abuse. The mean duration of smoking [21.76 + 10.53] was statistically significant ($p < 0.001$) when compared with the mean duration of renal dysfunction [4.36+ 5.28] [19] (Table 10)

Conclusion

The prevalence of substance abuse observed in our sample appears to be an important finding which might contribute to evaluate the role in the path physiology of CKD. Further study involving larger sample with cohort study along with additional imaging techniques, genetic studies and CSF studies may unravel the precise causative factors. Such a detailed study would help in identifying preventive aspects of psychiatric problems in patients with CKD. At the same time, intervention and counselling to units' staff through educational programs would raise awareness and promote the bio psychosocial approach to the disease and the patient.

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