ASIAN JOURNAL OF PHARMACEUTICAL AND CLINICAL RESEARCH

INNOVARE ACADEMIC SCIENCES
Knowledge to Innovation

Vol 8, Issue 1, 2015

ISSN - 0974-2441

Research Article

PSYCHIATRIC MORBIDITY IN PATIENTS WITH CHRONIC KIDNEY DISEASE UNDERGOING HEMODIALYSIS

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Received: 31 October 2014, Revised and Accepted: 22 November 2014

ABSTRACT

Objective: Chronic kidney disease (CKD) is a public health problem that tends to take dimensions of epidemic and has serious impact on quality of patient's life. The aim of the present study was to evaluate the psychiatric morbidity in CKD patients undergoing hemodialysis.

Methods: This study enrolled 130 CKD patients undergoing hemodialysis. Psychological characteristics of the patients were assessed with the Mini-International Neuropsychiatric Interview.

Results: The mean age of patients undergoing hemodialysis was 53 years±13.9 and the mean age of male was 52.79 years±13.9 and female were 53.37 years±12.89. The results of renal dysfunction showed mean 2.99 years±3.12, with mean duration of male is 3.23±3.5 years and female is 2.57 years±2.2.40% of patients (n=52) were diagnosed with psychiatric illness, 27.69% male patients (n=36), 12.3% female patients (n=16). The duration of renal disease (mean=2.99 years) was compared with a duration of psychiatric illness (mean=1.34 years). It was observed that the difference between the means is statistically significant (p=0.02). The results showed that the mean duration of mental illness was 1.34 years±1.47. 69.2% were males (n=36), and 16, 30.8% were females. Most of the patients (n=25, 19.23%) diagnosed to have a psychiatric illness belonged to the age group of 40-60 years. The age of onset of renal disease in our sample was 50 years±14.05, and the age of onset of psychiatric morbidity was 50.92 years±13.63.

Conclusion: The present study has been helpful in understanding the onset of psychiatric illness among the CKD patients undergoing hemodialysis.

Keywords: Psychiatric morbidity, Dialysis, Chronic renal failure, Psychological factors.

INTRODUCTION

Numerous psychiatric issues could be seen in patients with chronic kidney disease (CKD). Hemodialysis is a renal substitution treatment causes different psychiatric issues. Hemodialysis is the most preferred treatment method for CKD. However, it has been insisting that a number of restrictions and modifications accompany this treatment, which have a ruinous impact on the quality of patient's life and affect individuals psychological and physical well-being [1]. CKD is a constant psychological process for patients and their families so as to acknowledge their new image and to be conformed to the new state of hemodialysis [2]. The personal satisfaction of patients obliging dialysis is influenced fundamentally, since it is connected with progressions in their day by day propensities and in their lifestyle for both themselves and their families. In the meantime, their physical wellbeing, their functional status, their individual connections and their social and financial status are enormously affected [3-5]. CKD although primarily a physical illness, it has noteworthy psychiatric sequel. Patients on dialysis are in a circumstance of degraded reliance on the machine, a methodology and a gathering of qualified restorative experts for whatever remains of his/her life. No other therapeutic condition has such an extent of reliance for the support treatment of an unending disease [6]. 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. 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 hemodialysis. Patients with renal failure regularly experience the ill effects of numerous other medicinal conditions and are on numerous diverse prescriptions. A number of these drugs might on occasion cause psychiatric side effects, and sometimes agitation and perplexity may be noted as a consequence of non-psychiatric drugs [7].

Psychiatric aspects of CKD

The psychological manifestations of renal failure were described by Addison in 1868 in his classic monograph on kidney disease [8,9]. The most common initial complaints of the uremic patient are fatigue, drowsiness and the inability to concentrate for long periods [10,11]. The concentration difficulty is always episodic; the patient can perform accurately and well in short spurts but cannot sustain activity. This impaired functioning is an early and sensitive index of brain dysfunction appearing prior to neurological symptoms. Those delirious psychoses may arise even in the early stages of the alteration of consciousness, but increase in frequency occurs along with the deterioration of the general mental state [12]. The frequency of all psychiatric disturbances was higher in the patients with a serum urea concentration of 250 mg/100 ml. The same was true of the presence of delirium and a significantly higher frequency of delirium was found in patients who died during the study period. The neuro-psychiatric changes are probably concomitant with chemical changes [5].

Patients with end-stage renal ailment need to attempt to adjust to a ceaseless physical disorder and the need much of the time of adjusting to dependence on a dialysis machine to stay alive. Modification in cognitive, behavioral and emotional terms is needed by patients and their families [6,13,14]. 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 [15-18].

An objective in patients with chronic kidney illness is maintenance of as ideal a personal satisfaction as is conceivable [19,20]. Functional capacity and prosperity of patients with chronic kidney illness is

identified with numerous variables, and the complication of CKD can influence working and prosperity in a negative manner.

Numerous treatment-related stressors are present in addition to the changes associated with a declining glomerular filtration rate [21-25]. CKD who require dialysis have a greater decrease in quality of life and more psychological distress who do not yet require dialysis [26-28] as well, the awareness that end stage renal disease (ESRD) is irreversible and incurable as well as the knowledge that potential mistakes may occur during dialysis resulting in risks to health and life can also result in distress.

The experience of dialysis can be very destructive for both the individual with the disease and that individual's family, resulting in a life that is greatly narrowed in scope with increased dependency on one's partner [29]. Constraints on daily normal activities can reduce the enjoyment of close friendships, satisfaction with family, performance and fulfillment with work and satisfaction with life in general [30]. The United States Renal Data System reports that approximately 36% of individuals who were employed 6 months before dialysis did not continue working after the initiation of dialysis therapy.

Patients on dialysis sustain multiple losses in all areas of their lives [31]. Depression is the most common psychiatric abnormality seen in patients on dialysis and has been demonstrated to be the strongest predictor of quality of life. In one study, 20% of dialysis patients reported the presence of suicidal ideas [32,33]. Patients on dialysis have significantly more bodily pain, greater depression, lower energy, poor health, greater physical, mental and greater limitations to work and participate in activities [34,35].

The reliance on medical technology, health care providers, and significant others for life-saving interventions by patients requiring maintenance dialysis may result in a feeling of being controlled by dialysis routines [36].

METHODS

This study included 130 patients who underwent dialysis procedure in Sri Ramachandra Medical Centre during the period January-June 2010. 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. Mini-International Neuropsychiatric Interview (M.I.N.I) 6.0 was used as a screening tool to diagnose mental illness in those patients. The M.I.N.I. is a short structured diagnostic interview.

Inclusion criteria

Patients who had CKD and were undergoing hemodialysis in Sri Ramachandra Medical Centre, either the patient or his/her relatives who had given informed consent for the study.

Exclusion criteria

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

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, IBM) 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±standard deviation throughout the document unless otherwise stated. The default level of significance was set p=0.05.

RESULTS

The demographic profile of the patients show that most of the patients (Table 1) attending hemodialysis were male (n=81, 62.3%) compared to females (n=49, 37.69%). The mean age of patients undergoing hemodialysis were 53 years±13.9, and the mean age of male was 52.79 years±13.9 and female were 53.37 years±12.89 appears to be same. Most of them belonged to age group of 40-60 years. Here there were no differences between male (n=31, 23.84%) and female (n=30, 23.07%) patients.

Duration of renal dysfunction was studied. The results (Table 2) showed mean 2.99 years±3.12, with mean duration of males is 3.23±3.5 years and female is 2.57 years±2.2. Majority of the patients (n=113, 86.92%) had undergone dialysis for <5 years out of which 55% patients being males and 32% being females. One male patient, diabetic and hypertensive who was 44 years of age has been on hemodialysis for 25 years.

About 40% of patients (n=52) were diagnosed with psychiatric illness, 27.69% patients were male (n=36), which was twice the number of female (n=16, 12.3%) patients (Table 3). There was no statistically significant association between sex and psychiatric diagnosis.

Most of the patients diagnosed with psychiatric illness (Table 4) had major depressive episode 17 (13.1%) followed by mild depressive episode 10 (7.7%). Seven patients had neuropsychiatric problems such as dementia 3 (2.3%), delirium (2.3%), and a case of organic emotionally labile disorder.

The duration of renal disease (mean=2.99 years) was compared with duration of psychiatric illness (mean=1.34 years). It was observed that the difference between the means is statistically significant (p=0.02) (Table 5).

The duration of mental illness and duration of renal dysfunction were analyzed, and the results showed that the mean duration of mental illness was 1.34 years±1.47. 69.2% were males (n=36), and 16, 30.8% were females (Table 6).

Majority of the study sample belonged to the age group of 40-60 years (n=61, 46.92%). Most of the patients (n=25, 19.23%) diagnosed to have a psychiatric illness (Table 7) belonged to the age group of 40-60 years. Likewise majority of the patients (n=36, 27.69%) who did not suffer from psychiatric illness also belonged to the same age group. No significant association was found when age group was compared to the psychiatric illness. The mean age of the patients with psychiatric illness was 52.27 years±13.45.

The age of onset of renal disease in our sample was 50 years±14.05, and the age of onset of psychiatric morbidity was 50.92 years±13.63 (Table 8). Most of the patients (n=50, 96.15%) belonged to the category of 0-5 years. Two patients had duration of mental illness as more than 5 years. This data correlated with onset and duration of renal dysfunction.

Majority of the patients (n=76, 58.46%) were currently unemployed among which 40 patients (30.76%) were diagnosed with mental illness. Out of the 40 patients who were unemployed, 33 patients (63.46%) were male, and 7 patients (13.46%) were female (Table 9).

Table 1: Age and sex distribution of CKD patients

Gender	Age group (%)			Total
	<40	40-60	>60	
Male	20 (15.38)	31 (23.84)	30 (23.07)	81 (62.3)
Female	5 (3.84)	30 (23.07)	14 (10.76)	49 (37.69)
Total	25 (19.23)	61 (46.92)	44 (33.84)	130 (100)

CKD: Chronic kidney disease

Table 2: Gender wise distribution and duration of renal dysfunction

Gender	Duration of renal dysfunction (%)				Total (%)
	<5 years	5-10 years	10-15 years	>15 years	
Male	71 (54.61)	8 (6.15)	1 (0.76)	1 (0.76)	81 (62.3)
Female	42 (32.3)	7 (5.38)	0 (0)	0 (0)	49 (37.69)
Total	113 (86.92)	15 (11.53)	1 (0.76)	1 (0.76)	130 (100)

Table 3: Psychiatric morbidity amongst CKD patients in our sample

Sex	Psychiatric illness (%)		Total (%)	Chi-square	p value
	Present	Absent			
Male	36 (27.69)	45 (34.61)	81 (62.3)		
Female	16 (12.3)	33 (25.38)	49 (37.69)	1.769	0.201
Total	52 (40)	78 (60)	130 (100)		

CKD: Chronic kidney disease

Table 4: Psychiatric diagnosis

ICD code	Description	Total (%)
F 01.1	Multi-infarct dementia	1 (0.8)
F 03	Unspecified dementia	2 (1.5)
F 05.0	Delirium, not superimposed on dementia	3 (2.3)
F 06.6	Organic emotionally labile disorder	1 (0.8)
F 20.3	Undifferentiated schizophrenia	1 (0.8)
F 32.0	Mild depressive episode	10 (7.7)
F 32.1	Moderate depressive episode	17 (13.1)
F 32.2	Severe depressive episode without psychotic symptoms	2 (1.5)
F 41.2	Mixed anxiety and depressive disorder	2 (1.5)
F 43.21	Adjustment disorders-prolonged depressive reaction	13 (10)

Table 5: Duration renal dysfunction and duration mental illness

Duration in renal dysfunction in years	Duration of mental illness (%)		Total (%)
	<5 years	5-10 years	
<5 years	44 (84.61)	1 (1.92)	45 (86.53)
5-10 years	5 (9.61)	1 (1.92)	6 (11.53)
>15 years	1 (1.92)	(0)	1 (1.92)
Total	50 (96.15)	2 (3.84)	52 (100)

Parameters	N	Mean (SD)	Paired differences	t-test	p value
Duration of renal dysfunction	52	3.14±3.83	−1.80±4.00	−7.012	0.002*
Duration of mental illness	52	1.32±1.47			

Table 6: Distribution of gender and duration mental illness

Sex	Duration of mental illness (%)		
	<5 years	5-10 years	Total
Male	35 (67.3)	1 (1.92)	36 (69.23)
Female	15 (28.84)	1 (1.92)	16 (30.76)
Total	50 (96.15)	2 (3.84)	52 (100)

Table 7: Age group and psychiatric illness

Age group	Psychiatric illness (%)			Chi-square	p value
	Present	Absent	Total		
<40	11 (8.46)	14 (10.76)	25 (19.23)		
40-60	25 (19.23)	36 (27.69)	61 (46.92)	0.434	0.805
>60	16 (12.3)	28 (21.53)	44 (33.84)		
Total	52 (40)	78 (60)	130 (100)		

DISCUSSION

CKD is emerging to be an important chronic condition. Nowadays the diabetes and hypertension is rapidly increased [37]. Earlier studies that have been done in various parts of India have been reviewed to examine the predominance of CKD, which starts from 0.79% to 1.4%. The rate of ESRD was evaluated to be 181/million populations in 2005 in the central part of India. Many more studies are needed across the nation in order to evaluate the exact burden of CKD [38].

Psychiatric disorders are common among patients with CKD having many personality disorders. The prevalence of depression in CKD patients has varied widely in different studies and different populations, using different assessment tools [39]. Prevalence rates are high as 30% have been reported in the studies [40].

Hemodialysis is a life-sustaining treatment for patients with ESRD. Patients on Hemodialysis are highly susceptible to emotional problems [41]. Depression is an independent factor for non-adherence in patients on maintenance dialysis [42] and suicide is highly linked with a depressed state of mind. It accounts for a death rate 0.2%/1000 dialysis patient-years at risk [43].

Cukor *et al*. showed that anxiety disorders were prevalent in the ESRD but no study for patients with ESRD for the presence of multiple psychiatric disorders [44]. There is a study that has found depression to be a predictor of high mortality in cases undergoing hemodialysis. Dialysis physicians often give less attention to somatic complaints of psychiatric illnesses are undiagnosed, affecting the prognosis of the disease. CKD patients on long-term hemodialysis are undergoing tremendous stress of environmental conditions in high order. These patients thought that they were on depending others in life. This condition may lead to negative way in this patient because of fear and disability.

Psychiatric co-morbidity, sometimes hidden behind of vigorous symptoms definitely affects the treatment. It becomes necessary to carefully assess the patients undergoing hemodialysis and improve liaison services.

CONCLUSION

The present study has been helpful in understanding the distribution of social demographic profile of psychiatric illness among the CKD patients undergoing hemodialysis. The interventional studies may be helpful in identification of the psychiatric illness in CKD patients. At the same time, it is of high importance the provision of psychological support toward the patients undergoing hemodialysis, which can be achieved with customized and continuous assessment and evaluation of each patient's needs. Psychosocial interventions would be better to begin at

Table 8: Age of onset of renal dysfunction and mental illness by gender

Parameters	Male		Female		N	Total mean (SD)
	N	Mean (SD)	N	Mean (SD)		
Age of onset of renal dysfunction	81	49.53±14.78	49	50.78±5.28	130	50.00±14.05
Age of onset of mental illness	36	50.13±13.95	16	52.70±13.12	52	50.92±13.63
t-test	36	−2.799	16	2.666	52	−3.248
p value		0.008*		0.18*		0.002*

SD: Standard deviation

Table 9: Occupation status in psychiatric patients by gender

Occupation	Gender (%)		Total (%)
	Male	Female	
Unskilled	(0)	1 (1.92)	1 (1.92)
Semi-skilled	1 (1.92)	(0)	1 (1.92)
Skilled	1 (1.92)	(0)	1 (1.92)
Self employed	1 (1.92)	(0)	1 (1.92)
Unemployed	33 (63.46)	7 (13.46)	40 (76.92)
Home maker	(0)	8 (15.38)	8 (15.38)
Total	36 (69.23)	16 (30.76)	52 (100)

diagnosis, should be adapted to the progress of the disease and focus on physical, psychological and social functioning of people. Also, the role of health professionals is to encourage patients to accept the treatment limitations, take self-care, enable patients taking responsibility for their health and fulfill their obligations toward family and society.

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