Prevalence of depressive and anxiety disorders in dialysis patients with chronic kidney disease

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Summary

Aim: The objective of this study was to assess the prevalence of depression in dialysis patients and its relationship with attitude toward illness.

Material and methods: 107 patients undergoing dialysis (56 men and 51 women) aged 23-85 (M=56.63 years, SD=15.45) were diagnosed with the Mini-International Neuropsychiatric Interview (M.I.N.I.) and completed the Beck Depression Inventory (BDI) and Acceptance of Illness Scale (AIS).

Results: Depressive disorders were diagnosed in 84 (78.5%) patients, including: a major depressive episode in 31 (29%), dysthymia in 30 (28%), and an episode of depression with melancholic features in 23 (21.5%). Only 23 (21.5%) patients met no criteria for a mental disorder on the M.I.N.I. There were statistically significant differences among mean BDI scores in the following groups: depression with melancholic features (M=20.9, SD=9), a major depressive episode (M=18.08, SD=8), dysthymia (M=13.75, SD=6), and no depressive disorder (M=3.8, SD=3). There were statistically significant moderate correlations between the intensity of depressive symptoms and acceptance of illness (r=0.5; p<0.001).

Discussion: The relationship between the intensity of depression and low acceptance of illness suggests that low mood occurring in patients undergoing hemodialysis is related to an increase in maladaptive attitudes towards chronic kidney disease.

Conclusions: A very high rate of prevalence of depressive disorders in dialysis patients was confirmed in the Polish population when a clinical structured interview was applied. This indicates that routine screening for depressive disorders in these patients is necessary.

depression/anxiety/chronic renal failure/hemodialysis

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INTRODUCTION

Mental disorders occur more frequently in patients with chronic illnesses than in the general population [1]. These comorbidities are related to increased diagnostic difficulties, worse prognosis, decreased quality of life and higher treat-

ment costs [2-4]. Studies on depression in chronic kidney disease were considered in a systematic review and meta-analysis of 41 populations, mainly from the USA, Turkey, France and Canada [5]. The meta-analysis concluded that the results of reports on the prevalence of depressive symptoms in this population depended on the tools used for depression assessment. In stage 5 of chronic renal failure, depression was found among 22.8% of patients according to interview-based measures but in 39.3% of patients according to self-rating scales or clinician-administered rating scales. Pursuant to this meta-analysis, there were no statistically significant differences in the prevalence of depression in patients treated with hemodialysis and peritoneal dialysis. Also, variables such as age, race, employment or comorbid diabetes did not affect the frequency of diagnosis of a major depressive episode in this population. However, the number of major depressive episodes increased by 1.2% for each 1% of dialysis patients who had a spouse [5].

It is estimated that comorbid depression is related to a several times higher death rate and longer hospitalization in patients with chronic renal failure [6]. In a study of death risk in patients with chronic illness undergoing dialysis only 9% of those who had comorbid depression survived for two years, whereas of those who did not have depression survival rate was 95%. Patients with depression required longer dialysis and received a kidney transplant less frequently (9% with depression vs. 50% without depression).

The occurrence of depressive symptoms has been recognized as a possible independent death risk factor in dialysis patients [7]. Before the dialysis, 45% of patients showed depressive symptoms in self-assessment tests [8]. Some studies show a constant growth of prevalence of major depressive episodes (21%) irrespective of the stage of kidney disease [6], but there are considerable discrepancies concerning depression in hemodialysis patients. It has been shown that depression occurs more often in dialysis patients (51.8%) than in patients with other chronic diseases (41.5%) and in patients with no chronic diseases (9.8%) [9].

There are only a few research studies on the possible association between hemodialysis and acceptance of chronic renal disease in patients. Some of these studies indicate that, in general,

patients with a functioning renal transplant have a significantly higher acceptance of illness score than patients on hemodialysis or peritoneal dialysis [10]. Other studies show that more mature developmental concepts of illness were significantly related to lower rates of depressive symptomatology [11].

There are no studies in Poland on depression among dialysis patients. Epidemiological studies indicated lower lifetime prevalence of major depressive episodes in the Polish general population, which was only 3% [12], as compared with 16.6% in the US general population [13]. Both studies were conducted on representative samples and used similar methodology. The differences in depression rates in general populations suggest that the prevalence of depression among Polish dialysis patients may be much lower than in other countries.

METHOD

Materials

The Mini-International Neuropsychiatric Interview [14] (M.I.N.I. Plus 5.0.0), Polish version [15], is a short, structured research tool in a module framework

The BDI [16-17], Polish version [18] is a self-assessment scale consisting of 21 questions (0–3 points per answer). It is one of the most frequently used scales to assess the depth of depression, with the following score interpretation: 0–9 minimal depression, 10–18 mild depression, 19–29 moderate depression, and 30–63 severe depression.

The Acceptance of Illness Scale (AIS) [19] Polish version [20-21] is a short scale used to assess the degree of a person's acceptance of their illness. It consists of eight statements describing the negative consequences of a poor health condition (lack of self-sufficiency, illness-associated limitations, dependency, lower self-esteem). Less negative emotions and reactions (a higher score on a five-degree scale – answer 'I do not agree') indicate higher acceptance (8–18 points lack of acceptance of and adaptation to the disease and a serious feeling of mental discomfort, 19–29 points moderate level of acceptance, 30–40 points good level of acceptance). The scale

accuracy measured with Cronbach's alpha indicator is 0.85, consistency 0.64.

Participants

A total of 107 patients with chronic kidney disease undergoing hemodialysis at the Department of Nephrology at Bielański Hospital in Warsaw and at the Clinical Dialysis Ward in the Public Clinic Hospital in Warsaw took part in the study. There were 56 males and 51 females, aged between 23 and 85 years (M=56.63 years, SD=15.45). The study received ethical approval of the Bioethics Committee at Warsaw Medical University. Two researchers trained in applying the tools used in the study invited 140 consecutive patients undergoing dialysis to take part. Informed consent was given by 107 (76.43%) patients. Most of the 33 patients who had refused to take part in the study justified their decision by stating they had low well-being, their medical condition was serious and/or they had apparent neurocognitive problems.

RESULTS

A total of 84 (78.5%) patients were diagnosed as having depressive disorders, including: 31 (29.0%) patients with an episode of depression, 30 (28.0%) patients with dysthymia, and 23 (21.5%) patients with depression with melancholic features. A total of 12 patients (11.2%) had comorbid depressive disorders and anxiety disorders. Six (5.6%) patients had obsessive–compulsive disorder, 4 (3.7%) had generalized anxiety disorder and 2 (1.9%) had panic disorders. Only 23 (21.5%) had no mental disorder based on the M.I.N.I. The mean intensity of depressive symptoms was measured with the BDI and compared with groups assessed with the ANOVA test (F=22.601; $p<0.001$). It was highest in the group with depression with melancholic features, then in the major depressive episode group, in dysthymia, and lowest in the group of patients without depression (Table 1).

Table 1. Intensity of depression symptoms (mean BDI scores) and illness acceptance (mean AIS scores) in dialysis patients with and without depressive disorders

	Measure	
Diagnosis	BDI M ± SD	AIS M ± SD
Dysthymia (n=30)	13.75 ± 6	22.21 ± 6.74
Major depressive episode (n=31)	18.08 ± 8	25.5 ± 6.22
Depression with melancholic features (n=23)	20.9 ± 9	21.67 ± 8.12
No depression (n=23)	3.8 ± 3	31.11 ± 6.17

AIS, Acceptance of Illness Scale. BDI, Beck Depression Inventory.

Significant differences in acceptance of illness were distinguished between patients with different depressive disorders (F=7.49; $p<0.001$), where the highest acceptance was in the group with no disorders, followed by the major depressive episode group, in the group with dysthymia, and in the depression with melancholic features group (Table 1).

A *post-hoc* least significant difference (LSD) test [22] showed statistically significant differences in the intensity of depressive symptom pairs with the exception of the major depressive episode and depression with melancholic features pair (Table 2).

Table 2. *Post-hoc* LSD test – comparison of depression intensity measured by BDI in groups differentiated according to depressive disorder in the M.I.N.I.

Diagnosis (A)	Recognition (B)	Average difference (A – B)	SE	P
Dysthymia (n=30)	Depression with melancholic features	–7.16[a]	2.15	<0.001
	No depression	9.95[a]	2.17	<0.001
Major depressive episode (n=31)	Dysthymia	4.33[a]	2.03	<0.05
	Depression with melancholic features	–2.83	2.11	0.2
	No depression	14.28[a]	2.14	<0.001
Depression with melancholic features (n=23)	No depression (n=23)	17.11[a]	2.24	<0.001

[a] Materiality threshold p<0.05.

BDI, Beck Depression Inventory. LSD, Least Significant Difference. M.I.N.I., Mini-International Neuropsychiatric Interview. SE, standard error.

Only 73 persons completed the AIS (the remainder were not able to complete it because of their medical condition). A moderate, statistically significant association between the intensity of depressive symptoms and reduced acceptance of illness was found (r=0.5; p<0.001). The *post-hoc* LSD test showed statistically significant differences in mean AIS scores among some of the compared pairs, including the 'no disorders' group, but in pairs with depressive disorders differences in AIS turned out to be statistically insignificant (Table 3).

Table 3. *Post-hoc* LSD test – comparison of acceptance of illness measured by AIS in groups differentiated according to depressive disorder in the M.I.N.I.

Diagnosis (A)	Recognition (B)	Average difference (A – B)	SE	P
Dysthymia (n=30)	Depression with melancholic features	0.54	2.23	0.8
	No depression	–8.90[a]	2.11	<0.001
Major depressive episode (n=31)	Dysthymia	3.29	2.05	0.1
	Depression with melancholic features	3.83	2.31	0.1
	No depression	–5.61[a]	2.20	<0.05
Depression with melancholic features (n=23)	No depression (n=23)	–9.44[a]	2.37	<0.001

[a] Materiality threshold p<0.05.

AIS, Acceptance of Illness Scale. LSD, Least Significant Difference. M.I.N.I., Mini-International Neuropsychiatric Interview. SE, standard error.

DISCUSSION

Limitations

The main limitation of the study is that it was conducted in only one medical center that can accept patients with more acute symptoms than other dialysis units. A 23.7% refusal rate for participation is acceptable in such a study.

The prevalence of depression was very high. It is possible that a large proportion of depression diagnoses could be associated with errors in the diagnoses themselves. However, the fact that patients were not able to complete the AIS suggests that the study population included many severely ill patients. The use of a structured diagnostic interview to some extent guarantees that the dialysis patient's mental state will not

be identified as resulting from their depressed mood associated with their reaction to disease symptoms and/or treatment inconvenience, but will be correctly identified as a major depressive episode.

The depressive symptoms were mild or moderate in most cases and severe only in five cases. During the interviews the majority of patients considered that a depressed mood is a natural consequence of illness and as such it has to be accepted.

The meaningful relation between depression intensity and low acceptance of illness suggests that low mood is related to an increase in maladaptive attitude toward chronic kidney disease. Successful treatment of depression may result in improvement in adherence to treatment recommendations.

CONCLUSIONS

This study indicates that depressive disorders may be particularly prevalent in dialysis patients with chronic kidney disease. Their intensity is moderately related to a low level of illness acceptance. Our results confirm the recommendation for routine screening for depression in dialysis patients [23-27].

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