DEPRESSION IN HEMODIALYSIS PATIENTS

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Abstract

Depression is the most frequent psychological complication of haemodialysis (HD) patients (pts) and has been associated with impaired Quality of Life (QoL). The aim of our study was to investigate the prevalence of depression in HD pts in relation to sociodemographic factors and the relationship between depression and QoL.

200 pts from Clinic for haemodialysis in Sarajevo, B&H were participating in the study. Mean age was 57,26±13,78 years and mean HD duration was 64,26±58,18 months. From the test material we applied BDI and SF-36.

51% of our pts have shown depression (BDI>11) in various degrees (30%-mild depression, 8,5%-moderate depression and 12,5%-severe depression). As we could expect, the most emphasized symptoms of depression were somatic symptoms. 55,5% of pts have shown QoL lower then average. Sociodemographic data such as gender, marital status and HD duration did not influence significantly on pt's QoL and occurrence of depression ($p>0,05$). As the age of the pts increased, level of depression increased too and QoL significantly decreased ($p<0,05$). Employed pts have shown significantly better QoL and lower level of depression in relation to unemployed pts ($p<0,05$). As the educational level of pts increased, QoL increased too and level of depression significantly decreased ($p<0,05$). Pts in 1st HD shift were significantly more depressed and have significantly worse mental health in compare to pts in 3rd HD shift ($p<0,05$).

Our results showed a high prevalence of depressive symptoms among the study group that was linked to trend of poor QoL.

KEY WORDS: BEN, Bosnia, endemic, non-endemic, family burden, GFR

Introduction

Procedure of haemodialysis (HD) treatment besides objective organic difficulties also causes bigger or less changes in psychological status and personality of HD patients (pts). These changes are result of continuous stressful situation, to what pts are exposed three times per week, as well as numerous changes that they face on personal, social and professional sphere (necessity to change the lifestyle habits, dependence of HD procedure and medical staff, loss of job and social position, reduced financial status, dietary regime, sexual dysfunction, problems related dialysis access, anxiety regarding mortality). However, the psychological response of pts to HD will mostly depend on his/her premorbid personality, the extent of support by family and eventual comorbid illness (1). Depression is the most common and probably the most important psychopathological complication of HD pts (1-8,10,14,16,17). Depression reduces pt's quality of life (QoL) and can progress to suicide or termination of HD if unrecognized or untreated (1-5,7-15,17). Pts often deny being depressed, because they don't want to be stigmatized (10). Dialysis pts frequently exhibit a depressive affect, witch contribute to marital, family and occupational problems (12). There is a lower prevalent of depression and depressive affect in employed pts, pts with greater social support, greater spirituality /religious involvement and in pts with HD duration more then 1 year (8). While daily HD may be more effective in controlling uraemia, daily impact of dialysis and increased treatment related stress may worsen the burden of the treatment and lead to depression (2). According to the Dialysis Outcomes and Practice Patterns Study (DOPPS) ongoing in 12 countries, the prevalence of depression ranges from 39,3%-62,3% (6). The exact incidence of depression in dialysis pts is unclear because of different criteria utilized for diagnosis of depression (3-5,8-12,14). In a classic comparative study of dialysis pts, Smith et al. using the BDI test demonstrated that 47% of pts satisfied the cut-off for depression, compared to 5% via a professional psychiatric evaluation (2). According to the studies from various countries the prevalence of severe depression is 5-22% and mild to moderate depression is 17,7-25% in dialysis pts (7). However, it is imperative to exclude uraemia and assure adequate dialysis before diagnosing depression, since the symptoms of depression and those originating from a somatic disorder are similar (3,7,9). Those somatic symptoms of depression usually dominated and include: sleep disturbances, changes in appetite and weight, fatigue, overall aches and pains, gastrointestinal disturbances, backaches, headaches and sexual dysfunction (1,7,9). However, an emphasis upon the cognitive (psychological) symptoms of depression rather than somatic may be diagnostically helpful (5,9). Psychological symptoms are: anxiety, irritability, reduced concentration and motivation, feeling of hopelessness and helplessness, excessive guilt, thoughts of suicide, hypersensitivity, criticism, perfectionism and indecisiveness (1,9). Also diagnostically important behavioural symptoms are: psychomotor retardation or agitation, crying spells, anger attacks, interpersonal confrontation, avoidant behaviour or social withdrawal, reduced productivity, compulsive or ritualistic behaviour, substance abuse and self injury (9). Approximately 0,2% of dialysis pts commits suicide (1,2,7,8). Dietary indiscretion, poor compliance with the dialysis prescription (shortening or skipping treatments), altering vascular access and withdraw from dialysis treatment may also be related to suicidal intent (2,8). Depressive affect, alcohol dependence and mental illness are strongly associated with suicide (8). The increased risk of suicide in this population should always be kept in mind. The pts must be questioned about suicidal thoughts and plans and psychiatric referral made immediately if necessary. Psychologist in dialysis unit may be helpful in categorizing depression and directing therapeutic options. Combined treatment with antidepressants, psychological counselling and cognitive-behavioural therapy results in greater success than medicament treatment alone. The aim of our study was to investigate sociodemographic factors and prevalence of depression in HD pts on the one hand and the relationship between depression and QoL on the other hand.

Materials and Methods

Patients: 200 pts aged from 20-80 years, from Clinic for haemodialysis in Sarajevo, Bosnia and Herzegovina were participating in the study during the period of August 2009 to February 2010. General questionnaire for registration of sociodemographic characteristics of patients (gender, age, marital status, educational level, employment status, HD duration and HD shift) was used. There was a male predominance (61,5%), mostly between 45-65 years old (50%), majority of them being married (62%) with secondary school finished (50,5%), unemployed (87%), predominantly with HD duration between 1-5 years and at the main daily HD shift (69%). Mean age was 57,26±13,78 years and mean HD duration was 64,26±58,18 (≈ 5 years).

Methods: We used 21-item version of Beck Depression Inventory (BDI) to assess the severity of depression. Higher scores indicate greater depressive symptoms. The cut-off value of ≥11 was used. In order to evaluate QoL of pts, SF-36 for dialysis pts was used. SF-36 is a multi-purpose, short-form health survey with only 36 questions. It measure psychometrically-based Physical Health (PH) and Mental Health (MH). 4 subscales measure PH: Physical Functioning (PF), Role-Physical (RP), Bodily pain (BP) and General Health (GH). 4 subscales measure MH: Vitality (VT), Social Functioning (SF), Role-Emotional (RE) and Mental Health (MH). Higher scores indicate better QoL of pts. Average score of SF-36 for medically ill population is about 50. HD pts who were participated in the study completed the test material during the HD treatment or while waiting for it. The questionnaire was explained to the pts by psychologist and when required, assistance was given in reading and understanding the questions.

Statistical analysis: Results of the study were displayed as means, standard deviations, frequencies and percentage. The normality of the distribution of each of the tested variables was assessed by Kolmogorov-Smirnov's Z-value test before choosing the method of data analysis. We compared the sociodemographic characteristics of pts and depression using chi-squared analysis. We also compared sociodemographic characteristics of pts and QoL, as well depression and QoL using ANOVA, MANOVA and Post Hoc Bonferroni Test. P<0,05 was considered statistically significant. The SPSS for Windows version 19 was used for statistical calculations.

Results

51% of our HD pts have shown depression (BDI>11) in various degrees. It was about mild depression of 30% of pts, moderate depression of 8,5% of pts and severe depression of 12,5% of pts. The most emphasized somatic symptoms of depression were: 83,5% of pts suffer from loss of energy, 81,5% from fatigue, 62,5% from sleep disturbances, 43,5% from sexual dysfunction and 35% from changes in appetite. With regard to psychological symptoms, the most emphasized were: unhedonia (84,5%), pessimism (74,5%), low self-esteem (64%), anxiety (63,5%), indecisiveness (51,5%), irritability (43%), depressive affect (41,5%), feeling unsuccessful (35,5%), reduced concentration (35%), self-criticism (22,5%), feeling of punishment (19,5%), feelings of guilt (18%) and suicidal ideation (11%). In addition, behavioural symptoms were: social withdrawal (51%) and crying spells (41%).

Soc-dem char.	Depression	
	χ^2	p value
Gender	___	___
Age	24,56	<0,000
Marital status	___	___
Educational level	16,97	<0,049
Employment status	15,25	<0,002
HD shift	19,12	<0,024
HD duration	___	___
Chi-Square (χ^2)		

TABLE 1. Relation between appearance of depression and sociodemographic characteristics of our HD patients

It seems that gender, marital status and HD duration did not influence significantly in occurrence of depression (p>0,05). However, when the cohort was stratified according to the age (20-45, 45-65 and >65 years) a significant difference between various age groups was found in relation to the depression (p<0,000). Older pts were significantly more depressed in compared to younger pts. Employment status was found to significantly affect on appearance of depression (p<0,002). Unemployed pts were significantly more depressed in relation to employed pts. Furthermore, there was significant difference in appearance of depression in relation to educational level (p<0,049). As the educational level of pts increased, level of depression significantly decreased. Pts in different HD shifts significantly differed in appearance of depression (p<0,024) (see Table 1.).

Soc-dem char.	QoL (F)	PH (F)	MH (F)
Gender	___	___	___
Age	12,27	14,47	6,71
	p<0,000	p<0,000	p<0,002
Marital status	___	___	___
Educational level	5,68	4,85	5,87
	p<0,001	p<0,003	p<0,001
Employment status	32,28	32,26	23,02
	p<0,000	p<0,000	p<0,000
HD shift	___	___	3,09
			p<0,028
HD duration	___	___	___

ANOVA (F) and Bonferroni Post Hoc Test (Bf)

TABLE 2. Relation between QoL and their PH and MH separately with sociodemographic characteristics of our HD patients

According to the results of SF-36, our HD pts have demonstrated QoL slightly better then average for medically ill population (59,36±28,45). However, standard deviation is very high, so 55,5% of our HD pts have shown QoL lower then average. As we could aspect, due to the medical ill, HD pts have demonstrated better MH (33,81±12,05), then PH (25,55±18,07). Demographical data such as gender and marital status did not influence significantly on pt's QoL (p>0,05). However, there was

highly significant difference in QoL between pts in different age groups. Indeed, the increased age of pts resulted in significantly decreased QoL (p<0,000) as well as in their PH (p<0,000) and MH (p<0,002) separately. In addition, Bonferroni Post Hoc Test have shown that there were significant differences in almost all subscales of QoL between all age group of pts, especially between younger (20-45 y) and older (65-...) group of pts (p<0,05). In relation to age, pts did not differed significantly only in GH and RE (p>0,05). Furthermore, when the employment status was analyzed, we found out that employed pts had significantly better QoL (p<0,000), PH (p<0,000), MH (p<0,000) and all their subscales (p<0,05) in relation to unemployed pts. In order to explore the relationship between educational level and QoL, we found out that as the educational level of pts increased, their QoL (p<0,001), PH (p<0,003) and MH (p<0,001) significantly increased too (p<0,001). According to educational level, pts differed significantly in all subscales of QoL too (p<0,05). Due to the Bonferroni Post Hoc Test, the differences were significant mostly between pts with primary school finished and pts with university degree (p<0,05). There was no significant difference in QoL in general and PH between pts in different HD shifts (p>0,05). However, pts in different HD shift differed significantly in MH (p<0,028) (see Table 2.). Interestingly, pts in the 3rd nocturnal HD shift have shown significantly better MH (SF, RE) in relation to pts in the 1st daily HD shift (Bf=6,44, p<0,025). QoL (PH and MH) was not found to differ significantly when compared by HD duration (p>0,05). However, there was significant difference in PF between pts with different HD duration (F=3,32, p<0,021). Accordingly, pts with HD duration between 1-5 y have shown naturally significantly better PF in relation to pts with HD duration more then 10 y (Bf=-3,56, p<0,022). Due to the analysis of descriptive statistic, the best QoL (PH, MH) have shown pts with HD duration between 5-10 y (38,05±11,54) and the worst pts with HD duration between 1-5 y (32,68±12,24).

	QoL (F)	PH (F)	MH (F)
Depression	36,14	26,74	39,73
	p<0,000	p<0,000	p<0,002

ANOVA (F) and Bonferroni Post Hoc Test (Bf)

TABLE 3. Relation between appearance of depression and QoL and PH and MH separately

And finally, there were significant differences in QoL in general (p<0,000), PH (p<0,000), MH (p<0,002) and all their subscales (p<0,000) between pts of different levels of depression (see Table 3.). Accordingly, as the level of depression of pts increased, their QoL significantly decreased. There was only no significant difference in QoL (PH, MH) between pts with mild and moderate depression (Figure 1).

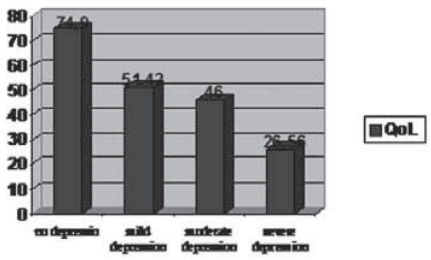

FIGURE 1. Relation between appearance of depression and QoL

Discussion

More then half of our HD pts were diagnosed as having depression in various degrees (51%) and QoL lower then average (55,5%) . Previous studies have also shown that depression is the most common psychological complications of HD pts, which can reduce pt's QoL (1-8,10,14,16,17). In spite of that, similar studies have reported lower percentage of depression among HD pts. Kimmel and Levy reported that 25% of HD suffer from depression, Hedayati et al. reported 26,7%, Son et al. 25,34% and Drayer et al. 28% (1,11,14,15). A possible cause for lower percentage of pts suffering from depression in similar studies laying in fact that their authors mostly use BDI score greater then 15 for measuring depression, because of risk of overlap of some somatic symptoms of depression with pt's objective difficulties related to HD. The second possible cause for that is that we in our country unfortunately don't practices cadaveric transplantation yet. So, for the most of our pts, HD is not temporary solution. Successful transplantation is associated with reduced levels of anxiety and depression (4). Accordingly, the most emphasized psychological symptom of depression in our HD pts was unhedonia (84,5%) and the most emphasized somatic symptom of depression was loss of energy (83,5%). According to Lopes et al., reduced energy, loss of libido and psychomotor retardation can be seen as predisposing factors to depression and result of depression (6). The most of our pts suffer from mild depression (30%), but severe depression is pretty emphasized too (12,5%). 11% of our pts had suicidal ideation, much less then in the study of Yucedal et al. (38,5%) (7). In the last 5 years, 2 pts from our HD Clinic had committed suicide. Both pts suffered from severe depression.

It seems that gender and marital status did not influence significantly on appearance of depression and pt's QoL. Similar studies have reported controversial results. Besides Lopes et al., which had reported significantly frequent depression in female pts, the most of other similar studies are in agreement with our result related to gender (1,6,7,8). On the other hand, when the association between marital status and depression / QoL was analyzed, we expect just the opposite - social support and marital satisfaction usually relate with decreased depressive affect (1,8). The reason for this opposite result may be due to the fact that married HD pts, in general have more responsibilities and obligations related to dialysis and additionally related to the family. However, when the cohort was stratified according to the age a significant difference between various age groups was found in relation to the depression and QoL. Indeed, the increased age of pts resulted in significantly increased depression and decreased QoL, witch is in accordance with the similar study of Drayer et al., but it is in opposite with the results of the study of Lopes et al. (6,15). The main reason for our results lying in the fact that older pts naturally have higher prevalence of comorbidities (hypertension, coronary heart disease, diabetes mellitus,...) witch show a tendency to increase depression and decrease QoL. Furthermore, when the employment status was analyzed, we found out that employed pts were significantly less depressed and had significantly better QoL in relation to unemployed pts, which is in accordance with many similar studies (6,7,14). For HD pts the most stressful thing experience is relating to employment status and how the disease will impact their finances. In the most of cases HD pts cannot work continuously and in full capacity after beginning on HD program. According to Yucedal et al., the main anxiety and depression sources of HD pts were loss of libido and unemployment (7). In order to explore the relationship between educational level and depression / QoL, we found out that as the educational level of pts increased, depression significantly decreased and QoL significantly increased. The main differences were between pts with primary school finished and pts with university degree. We suppose that pts with higher formal education are more educated about their illness and dialysis too and that they are more compliant with dialysis, dietary regime and medication prescription, which have a positive effect on their physical and mental health. Furthermore, pts in different HD shifts significantly differed in appearance of depression and in their MH. Interestingly, pts in the 1st daily HD shift in significantly higher number were depressed and showed significantly worst MH in compared to pts in the 3rd nocturnal HD shift. The reasoning behind this observation may be viewed in the fact that our 3rd nocturnal HD shift is mainly consist from our employed HD pts, who are less depressed and have better QoL. While daily HD may be more effective in controlling uraemia, for some pts daily impact of dialysis and increased treatment related stress may amplify the burden of treatment (2). Neither depression, nor QoL were found significantly different in relation to HD duration. However, from the analysis of descriptive statistics of both variables, we can see that as the HD duration increased, severity of depression and QoL slightly increased. After 1st year on HD treatment QoL slowly decreased, and then after 5 y increased, probably because of better adjustment to the psychological burden of HD. Many similar studies confirm greater prevalence of depression in pts with HD duration more then 1 y (1,6,8). And finally, as the level of depression of pts increased, their QoL significantly decreased, which is in accordance with the results of all similar studies (1,14,16,17).

Generalizability of the results of our study is limited as the sample was composed only of pts from Sarajevo, Bosnia and Herzegovina. Due to the large sample of pts, for diagnosing depression we use only BDI (cut off ≥11), not psychiatric diagnosis of depressive disorder based on DSM IV. So, it is possible that we overdiagnosed depression. However, all pts should be asked and encouraged to complete BDI every 6 months, which may help HD staff to identify pts who need special care in order to improve their QoL.

Conclusion

Our results showed a high prevalence of depressive symptoms among the study group that was linked to trend of poor QoL. It is hard to define weather depression leads to poor QoL or poor QoL leads to depression. Younger pts, pts with higher level of education, employed pts and those in the 3rd nocturnal HD shift were less depressed and had better QoL in relation to older, less educated, unemployed pts and those in the 1st daily HD shift. Demographical data such as gender, marital status and HD duration did not influence significantly on appearance of depression and pt's QoL.

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