



Psychological and Emotional Status, and Caregiver Burden in Caregivers of Patients With Peritoneal Dialysis Compared With Caregivers of Patients With Renal Transplantation

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ABSTRACT

Objectives. We sought to examine the relationship between caregivers of continuous ambulatory peritoneal dialysis (CAPD) and of renal transplant (Tx) patients with regard to sleep quality, anxiety, depression, and overall burden.

Methods. This cross-sectional study of prevalent caregivers of CAPD patients and of renal Tx patients used a multidimensional instrument to assess the association of sleep quality, depression and anxiety symptoms, as well as burden using a Zarit Burden Interview. Among the 113 caregivers who participated in this study, 53 were in the Tx and 60 in the CAPD group.

Results. The overall mean age was 40.7 ± 13.6 years. The proportions of age, gender, income, and education level were similar between the 2 groups. Caregivers of peritoneal dialysis patients had significantly higher rates of anxiety and depression compared with the Tx group ($P = .039$ and $P = .003$, respectively). Good sleep quality rates for caregivers of Tx versus CAPD patients were 88.7% ($n = 47$) and 61.7% ($n = 37$), respectively. Poor sleep quality was significantly higher among caregivers of CAPD compared with those for Tx patients ($P = .001$). Caregiver burden scores were significantly higher in caregivers of CAPD patients compared with Tx patients ($P < .001$). Upon logistic regression analysis, caregivers of CAPD patients were 2.61 times (95% confidence interval, 1.03–6.59; $P = .043$) higher than the caregiver burden risk than those for Tx patients.

Conclusions. This study indirectly indicated that renal Tx improves the life quality and decreases psychiatric symptoms among caregivers of ESRD patients.

CHRONIC DISEASES such as end-stage renal disease (ESRD) influence both the patient and caregiver lives. Among 62,903 patients undergoing renal replacement therapy in 2010 onwards, 78.7% have undergone hemodialysis; 12.5%, renal transplantation (Tx) and 8.8%, peritoneal dialysis.¹

Continuous ambulatory peritoneal dialysis (CAPD) is a continuously administered therapy available at home that requires a change of dialysate 4 times over every 24-hour period. This therapy significantly changes the patient's behavioral health patterns, which in turn affects the family environment. As time on CAPD treatment increases, patients may experience physical, social, and emotional complications that require identification and treatment. How those problems affect caregivers is not clearly understood.² In contrast, kidney Tx is the gold standard treatment for

ESRD patients for it provides a better quality of life and the possibility of longer survival.^{3–5} The success of kidney Tx also partly relies on a nonprofessional primary caregiver who assists the patients to manage their needs during ESRD and subsequent Tx.⁶

Considering the growing recognition of the burden and adverse effects of ESRD on caregivers, little evidence is available about the effects of information or support inter-

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ventions on the physical or psychosocial well-being of informal caregivers.⁷ Little research has been performed to compare the burden and mental health among caregivers of CAPD versus Tx patients.

In the present study, we examined these individuals with regard to sleep quality, anxiety, depression, and caregiver burden. When designing this study, we hypothesized that caregivers of CAPD have a harder time than those for renal Tx recipients.

METHODS

Study Design

A cross-sectional, multidimensional instrument assessed the association of quality of sleep (Pittsburgh Sleep Quality Index [PSQI]), depression and anxiety symptoms (Hospital Anxiety and Depression Scale [HADS]), and caregiver burden in a Zarit Burden Interview (ZBI) between CAPD versus Tx patient caregivers.

Subjects

Adults who were self-identified as the patient's primary caregiver or spouse, who were ≥ 18 years old, who were literate, who were not previous living kidney donors, and who provided informed consent were eligible for the study. The exclusion criteria were: age < 18 years, active malignancy, active infection, active coronary artery disease (eg, unstable angina, myocardial infarction), or known dementia, delirium, organic brain syndrome, mental retardation, psychosis, bipolar disorder, active alcohol abuse or refractory psychiatric disease.

Variables

Caregivers completed a sociodemographic form including age, gender, education, income, present/past history of psychiatric illness or family history of psychiatric illness, and time on dialysis of the CAPD patient. A monthly income of US\$500 was evaluated as low economic status; US\$500–1500, medium and $> US\$1500$, as good economic status.

Measurements

Several standardized questionnaires with known validity and reliability were employed to assess quality of sleep, depression, and anxiety symptoms, as well as caregiver burden. All data were collected by face-to-face interviews by nurses in the nephrology department.

HADS. Anxiety and depressive symptoms were measured via a self-assessment scale using HADS developed by Zigmond and Snaith.⁸ It is divided into an anxiety subscale (HAD-A) and a depressive symptoms subscale (HAD-D), both containing 7 intermingled items. This scale is not intended to establish a diagnosis, but rather to determine risk groups by rapidly screening level and severity of anxiety and depression. The Turkish version of the HADS has been validated by Aydemir,⁹ who suggested a cutoff value of 10 of 11 on the anxiety and 7 of 8 on the depressive symptoms subscale. Accordingly, participants with those or higher scores were considered to be at risk. The lowest score for both subscales is 0 and the highest score is 21.

PSQI. Quality of sleep was measured using the PSQI. This self-administered questionnaire assesses quality of sleep during the previous month. It contains 19 self-rated questions yielding 7 components: Subjective sleep qualities, sleep latency, sleep dura-

tion, sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction. Each component is scored from 0 to 3, yielding a global PSQI score between 0 and 21; higher scores indicate a lower quality of sleep. The PSQI is useful to identify good versus poor sleepers. A global PSQI score of > 5 indicates that a person is a "poor sleeper": Severe difficulties in ≥ 2 or moderate difficulties in > 3 areas.¹⁰

ZBI. The ZBI scale was developed to measure burden among family caregivers of persons with dementia; however, it has been used in other populations.² To measure caregiver burden, we employed a Turkish translation of ZBI by Inci et al.¹¹ Interpretation of the score was 0–20 (little or no burden), 21–40 (moderate burden), and ≥ 41 (severe burden).

Statistical Analysis

We calculated mean values, standard deviations, and proportions. Differences among categorical variables were analyzed using the chi-square test; those of continuous variables were compared with independent-sample *t* tests. Logistic regression analysis used a backward stepwise (conditional) method to assess the effect of demographic features on caregiver burden of both groups. $P < .05$ was considered to be significant in all data analyses.

RESULTS

Among 113 caregivers who participated in this study, 53 (46.9%) were in the Tx and 60 (53.1%) in the CAPD group. Overall mean age was 40.7 ± 13.6 years. The proportions of age, gender, income level and education level were similar between the 2 groups (Table 1).

Caregivers of peritoneal dialysis patients showed significantly higher rates of anxiety and depression compared with the Tx group ($P = .039$ and $P = .003$; Table 2). Good sleep quality rates for caregivers of Tx and CAPD patients were 88.7% ($n = 47$) and 61.7% ($n = 37$) respectively. Poor sleep quality was significantly higher among those for CAPD versus Tx patients ($P = .001$; Table 2). Caregiver burden

Table 1. Sociodemographic Characteristics of Caregivers

Characteristics	Transplantation (<i>n</i> = 53)	Peritoneal Dialysis (<i>n</i> = 60)	<i>P</i>
Duration of caregiver role (mean \pm SD, yrs)	2.62 \pm 1.55	3.08 \pm 3.4	.35
Age (mean \pm SD)			
Male	40.19 \pm 11.0	47.39 \pm 15.9	.11
Female	36.85 \pm 9.4	36.74 \pm 13.6	
Gender [<i>n</i> (%)]			
Male	27 (50.9)	33 (55.0)	.67
Female	26 (49.1)	27 (45.0)	
Mean income [<i>n</i> (%)]			
Low	9 (17.0)	18 (30.0)	.27
Middle	43 (81.1)	41 (68.3)	
High	1 (1.9)	1 (1.7)	
Education [<i>n</i> (%)]			
Literate	1 (1.9)	4 (6.7)	.16
Primary school	35 (66.0)	27 (45.0)	
Secondary school	3 (5.7)	5 (8.3)	
High school	11 (20.8)	15 (25.0)	
University	3 (5.7)	9 (15.0)	

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