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QUALITY OF LIFE OF END-STAGE RENAL FAILURE PATIENTS RECEIVING CONTINUOUS AMBULATORY PERITONEAL DIALYSIS

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Summary. *Quality of life is an important attribute of continuous ambulatory peritoneal dialysis (CAPD) therapy and it has not, to our knowledge, been studied before in our country. This study describes how 87 patients - 45 in end-stage renal failure treated conservatively (25 males and 20 females, mean age 59.5 ± 11.9) and 42 on CAPD (24 males and 18 females, mean age 58.5 ± 11.6) - perceived their own quality of life. They were all interviewed using the original questionnaire generating fifteen life quality variables: marital status and family relations, employment status, working ability, tiring, sleep, appetite, endurement of cold, wound healing, travelling, sports, socializing, sexual activity, mood, home maintenance, happiness. Differences between groups were assessed with chi-squared test (χ^2) - correction by Mood, Student's t-test and McNemar's test.*
The results obtained show statistically significant improvement in working ability ($p < 0,05$) and in tiring ($p < 0,05$) in CAPD patients compared to those in end-stage renal failure treated conservatively. Positive influence of CAPD treatment was not impressive as expected due to the fact that in our country this treatment modality is still mostly used in old people and people suffering from serious systemic diseases whose general status is already so heavily impaired even before the start of the treatment that it can not be easily repaired.

Key words: *Continuous ambulatory peritoneal dialysis, quality of life*

Introduction

Along with survival and other types of clinical outcome, the functioning and well-being that characterize end-stage renal disease patients are important indicators of the effectiveness of the medical care that they receive. Chronic dialysis, peritoneal dialysis and kidney transplantation are miracles of medical technology, and the ability of these technologies to sustain lives is of unquestioned significance. However, medical effectiveness is increasingly viewed from multiple prospectives that include more than patients survival rates and clinical outcome. Patients' functional status, well-being and satisfaction along with treatment costs also determine the effectiveness of care (1). All these factors need to be clearly understood by the hospital staff to enable them to support the patient in an individualized way (2).

The definition of quality of life is difficult as it embraces many dimensions, ranging from physical well-being and cognitive competence to the establishment of satisfactory inter-relationships, the occupation of housing which is enjoyed, and possession of sufficient income to explore the world beyond that necessary just for basic biological survival. When the World Health Organization defined health as a "state of complete physical, mental and social well-being and merely the absence of disease or infirmity", maximizing patients' physical, mental, and social functioning and well-being was articulated as a goal along with addressing patients' clinical health needs. In patients who have a chronic disease such as ESRF for which cure is not a realistic goal maximizing functioning and well-being should be primary objectives of care. The importance of measuring the quality of life of end-stage renal failure (ESRF) patients in relation to healthcare lies in not only providing the absolute survival but also the quality of that survival (3).

The quality of life in ESRF patients receiving peritoneal dialysis has not been studied previously in our country.

The aim of this study was to assess the influence of end-stage renal failure on patient's life and to compare qualities of life in ESRF patients treated conservatively and with continuous ambulatory peritoneal dialysis (CAPD).

Patients and methods

The study was carried out at the University Hospital

Table 1. General Patients' Data

Group	N^o	Sex		Age (years)				Education level		
		male	female	20-50	51 or more	Xsr	Std	primary school	high school	university
ESRF	45	25	20	24	21	59,5	11,9	21	12	12
CAPD	42	24	18	7	35	58,5	11,6	17	20	5
All	87	49	38	31	56	-	-	38	32	17

Legend: ESRF - end-stage renal failure patients treated conservatively,
CAPD - continuous ambulatory peritoneal dialysis patients,
Xsr - mean value, Std - standard deviation

of the Clinical Center of Serbia in Belgrade. During a two year period (from October 1995 to September 1997) all patients with ESRF treated either conservatively or with CAPD in Clinic of Nephrology were invited to participate in the study. The inclusion criteria were: consecutive patients with chronic renal failure, glomerular filtration rate less then 20 ml/min, no erythropoietin therapy and intellectual and mental capacity to understand and answer the questionnaires. There were 87 patients (49 males and 38 females) eligible for enrollment. Their general characteristics are shown on Table 1.

All patients completed an original questionnaire with 37 questions which generated 15 life quality variables (4): socio-economic (marital status and family relations, employment status), physiological (working ability, tiring, sleep, appetite, endurement of cold, wound healing) and personal (traveling, sports, socializing, sexual activity, mood, home maintenance, happiness). This questionnaire was composed using The Karnofsky Index (5), The Notthingham Health Profile (6) and Sickness Impact Profile (7) as examples. Working ability was assessed using The Circle Method: patients were asked to imagine that full circle represents their previous working ability and then to present the part which would correspond their present working ability (8). Marital status and family relations data before the treatment and at present were obtained using yes-or-no questions. All the other questions had four levels of gradation meaning: yes, mostly yes, mostly no and no, formulated appropriately.

The obtained data have been analyzed with chi-squared test (χ^2) - correction by Mood, Fishers' test, Students' t-test and McNemars' test.

Results

Examining marital status and family relations gave predictable results: there were no changes compared to the situation before the illness nor differences between groups. Such results could have been expected having in mind the patriarchal organization and the significance of family in our region. The majority of CAPD patients noted as "unmarried" are actualy widows or widowers since most of these persons are above fifty years of age. (Table 2)

Three quarters of patients (65; 75%) have not noticed changes in their appetite, while 22 of them reported worsening of appetite since the beginning of therapy. There were no statistically significant differences among groups.

Half of the patients (44; 51%) think themselves to be more sensitive to cold than before the treatment. Again, no statistically significant differences were found between the groups.

Table 2. Patients' marital status

Group	Marital status		All
	married	not married	
ESRF	21	24	45
CAPD	24	18	42
All	45	42	87

Legend: ESRF - end-stage renal failure patients treated conservatively, CAPD - continuous ambulatory peritoneal dialysis patients

A very small number of patients - only six and all in ESRF group, have noticed slower wound healing. However, that was not enough to create a statistically significant difference within CAPD group.

About one quarter of patients (23; 26%) have problems with sleeping - either with falling to sleep or with maintaining it. The condition is slightly worse in CAPD group but there is still no statistically significant difference.

CAPD patients have a significantly better working ability than ESRF patients ($p < 0.05$). However, none of them actually work - they are either on a sick leave or receive a disability pension, while in ESRF group only 5 persons still work (Graph 1).

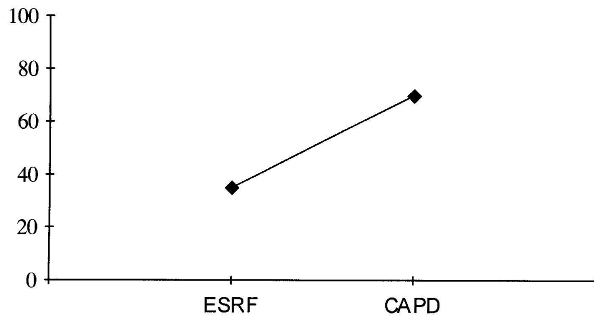
Before the illness 32 persons were involved in some kind of sports, usually only for recreation. Now, absolutely none of the interrogated persons practice any kind of physical activity.

Patients undergoing CAPD treatment tire significantly less than ESRF patients treated conservatively ($p < 0.05$; Graph 2).

In this study "travelling" was defined as "leaving home for a couple of days or more - meaning summer or winter holidays, excursions, weekends away etc.". Only three persons, and all of them in ESRF group, have not changed their travelling habits. There were no statistically significant differences observed between groups.

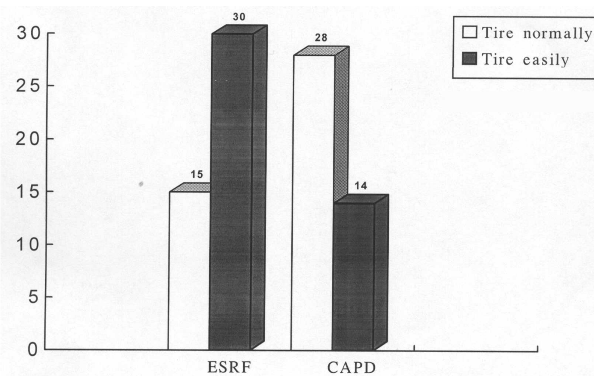
About two thirds of patients (54; 62%) are still

socialize with their old friends while even larger number (72; 83%) makes new friends easily but mostly in hospital surrounding. There were no statistically significant differences observed between groups.



Graph 1. Patient's working ability

Legend: ESRF - end-stage renal failure patients treated conservatively, CAPD - patients on continuous ambulatory peritoneal dialysis, $p_{ESRF,CAPD} < 0.05$



Graph 1. Patient's tiring

Legend: ESRF - end-stage renal failure patients treated conservatively, CAPD - patients on continuous ambulatory peritoneal dialysis, $p_{ESRF,CAPD} < 0.05$

Approximately half of the interrogated patients (42; 48%) think their sex life has not changed since the beginning of treatment. We should however accept these data with a dose of criticism since people on these territories do not like to disclose information concerning this subject. It is important to note that there is a statisticaly significant difference in CAPD group among those under 50 years of age and those who were 51 or more years old ($p < 0.01$; Table 3).

Half of the examined patients (43; 49%) think their mood has not changed due to illness, while the other half (44; 51%) find their mood worsened since the beginning of the treatment. There are no statistically significant differences between groups (Table 3).

About two thirds of patients (53; 61%) consider themselves able to perform their tasks around home and take care of themselves (not taking financial dependence in consideration). Again, no statistically significant differences between groups were found.

A little less than half of the patients (39; 45%) think themselves more or less happy while 55% are unhappy and unsatisfied with their life. There are no significant differences between groups. However, there was a statisticaly significant difference inside ESRF group concerning patient's age ($p < 0.01$; Table 3). It is interesting to emphasize that this percentage of people satisfied with their lives is larger then in healthy population (9).

Discussion

The interest in measuring quality of life in relation to healthcare has increased enormously in recent years. This is equally true for ESRF where its main purpose is to provide more accurate assessments of an individual's or population's health and of the benefits and harms that may result from healthcare. This is even more important in renal failure care where advances are not uncommon and there are alternative therapies available to manage patients (3). These kind of studies have become more popular in our country only in recent times and, to our knowledge, this is the first one dealing with ESRF patients treated with CAPD. This is one of the reasons why there still doesn't exist an universal method for measuring these patient's quality of life.

Previous studies by foreign authors (9, 10), on patients in ESRF and on hemodialysis treatment show that these patients suffer from disease-specific symptoms, diminished physical working capacity, inability to pursue full-time employment, difficulties in coping with family responsibilities and social lives. Moreover dependency on a life-sustaining treatment is stressful. Since former investigators showed that partial

Table 3. Patients' sexual activity, mood and happiness concerning the age

Group	Age (years)	Sexual activity		Mood		Happiness	
		same	impaired	same	worse	happy	not happy
ESRF	20-50	12	12	9	15	6^{*}	18^{*}
	51 or more	12	9	9	12	12^{*}	9^{*}
CAPD	20-50	0^{**}	7^{**}	3	4	3	4
	51 or more	16^{**}	19^{**}	10	25	16	19
All	-	40	47	31	56	37	50

Legend: ESRF - end-stage renal failure patients treated conservatively, CAPD - continuous ambulatory peritoneal dialysis patients, * - $p < 0.01$ between ESRF patients aged 20-50 and 51 or more, ** - $p < 0.01$ between CAPD patients aged 20-50 and 51 or more

correction of anemia with erythropoietin significantly increases quality of life, functional ability and physical working capacity in hemodialysis patients we made sure to include in our groups only patients who did not receive erythropoietin (2, 11). On the other hand, CAPD treatment by itself has been proved to be efficient in improving the serum hemoglobin and hematocrit values (12). Our own results confirm this observation, as showed in Table 4. Statistically significant improvements in working ability and tiring compared to ESRF patients on conservative treatment can be explained by that fact. While other authors found CAPD to have extremely strong positive impact on patients' life quality (13), those were the only two variables we found significant improvements in. This can be explained by the fact that in our country CAPD is still not enough popular a treatment modality as it should be. It is usually applied to patients who suffer from serious systemic disorders followed by secondary complications and metabolic disturbances. Their quality of life and adapting abilities are therefore seriously damaged even before the commencement of the treatment and can not be easily repaired (14). This could be an explanation for the large number of patients above 50 years of age who claim their sex life hasn't changed since the beginning of treatment. Their sexual activity has actualy been impaired long before that (Table 3), and CAPD had no positive influence on this variable. Also, concerning happiness and life satisfaction, it is logical that older people, above 50 years of age, can consider themselves more or less happy judging by the things they already have accomplished in life. The younger, sentenced to lifelong illness and treatment, can not consider themselves very lucky.

The findings in this study are limited by the small sample and should be interpreted with caution. Small samples seem to be a characteristic concern in studies of patients with CRF due to relative low prevalence of the disease and a high withdrawal rate caused by changes of treatment modality due to progression of the disease, concomitant diseases and old age.

Table 4: Hemoglobin concentration (g/l) and hematocrit values (%) in end-stage renal failure patients treated conservatively and with peritoneal dialysis

Group	Hemoglobin		Hematocrit	
	Xsr ± Std	N^o	Xsr ± Std	N^o
ESRF	82,23 ± 12,99	45	0,24 ± 0,02	42
CAPD	95,38 ± 15,62	40	0,27 ± 0,04	39
$p_{ESRF,CAPD}$	<0,01		<0,05	

Legend: ESRF - end-stage renal failure patients treated conservatively, CAPD - continuous ambulatory peritoneal dialysis patients, Xsr - mean value, Std -standard deviation, N^0 - number of patients

Conclusions

Quality of life in ESRF patients is affected by many factors such as medical treatment, nursing care, environmental factors, information given or not given, individual functional capacity, social support and personal strength. The results obtained provide a useful instrument showing in which areas care should be concentrated and in what way patients' own resources need to be strengthened while preparing for or undergoing peritoneal dialysis treatment.

In certain period of chronic renal failure evolution conservative therapy is sufficient for maintaining balance of body functions but it does not do much for improving quality of life of these patients. Peritoneal dialysis shows positive influence on working ability and tiring. We have, however, expected more impressive results by this treatment modality. The reason for such poor results is that CAPD in our country is still applied in old people and people with serious and highly advanced systemic and metabolic diseases whose quality of life is already seriously impaired by these factors.

Along with continued efforts to reduce mortality and morbidity of patients dependent on renal replacement therapy, maximizing ESRF patient's functioning and well-being should be a priority in the clinical setting (1).

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KVALITET ŽIVOTA BOLESNIKA U ZAVRŠNOM STADIJUMU HRONIČNE INSUFICIJENCIJE BUBREGA LEČENIH PERITONEUMSKOM DIJALIZOM

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Kratak sadržaj: *Različiti postupci lečenja hronične insuficijencije bubrega imaju za cilj i da poboljšaju kvalitet života obolelih. Da bi se utvrdio uticaj kontinuirane ambulatorne peritoneumske dijalize (CAPD) na kvalitet života bolesnika ispitano je 87 osoba: 45 u završnom stadijumu hronične slabosti bubrega lečenih konzervativno (25 muškaraca i 20 žena, srednjeg starosnog doba 59,5 ± 11,9) i 42 na CAPD (24 muškaraca i 18 žena, srednjeg starosnog doba 58,5 ± 11,6). Korišćenjem originalnog upitnika ispitano je 15 varijabli kvaliteta života: bračno stanje i odnosi u porodici, zaposlenost, radna sposobnost, zamor, san, apetit, raspoloženje, podnošenje hladnoće, brzina zarastanja rana, bavljenje sportom, putovanje, održavanje prijateljstava, seksualna aktivnost, sposobnost za brigu o sebi i sreća.*

Rezultati su pokazali statistički značajno poboljšanje radne sposobnosti ($p < 0,05$) i smanjenje zamor ($p < 0,05$) kod osoba na CAPD u odnosu na one lečene konzervativno. Iako rezultati ukazuju na pozitivan učinak CAPD na kvalitet života obolelih oni nisu tako impresivni kao što bi se moglo očekivati. Razlog tome je što se ovaj metod lečenja u našoj zemlji još uvek primenjuje gotovo isključivo kod starih i osoba sa teškim sistemskim oboljenjima čiji je kvalitet života toliko narušen još pre početka terapije da se ne može značajnije popraviti.

Ključne reči: *Kontinuirana ambulatorna peritoneumska dijaliza, kvalitet života*

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