

## КАЧЕСТВО ЖИЗНИ У ПАЦИЕНТОВ, СТРАДАЮЩИХ ХРОНИЧЕСКОЙ БОЛЕЗНЬЮ ПОЧЕК

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**Цель.** Изучить качество жизни (КЖ) пациентов с хронической болезнью почек (ХБП) в условиях Республики Таджикистан. **Материалы и методы.** Исследование проводилось в 2016-2018 гг. Обследовано 319 пациентов с ХБП (из них мужчин – 58,9%, пациентов с ХБП I-IV стадии – 121, получающие программный гемодиализ – 109, после трансплантации почки – 89) и 103 относительно здоровых лица (группа контроля, мужчин – 53,4%). Основные причины ХБП: гломерулонефрит, сахарный диабет, пиелонефрит. КЖ оценивалось по опроснику SF-36. **Результаты.** Продемонстрировано статистически значимое ухудшение КЖ у больных с ХБП по большинству параметров – как в сравнении с группой контроля, так и при прогрессировании ХБП. При терминальной стадии ХБП КЖ по ряду показателей (интенсивность боли, общее здоровье, физическое здоровье, социальное функционирование) оказалось хуже у больных, получающих программный гемодиализ в отличие от пациентов, у которых была выполнена трансплантация почки. По показателям психического и психологического здоровья эти группы не различались, что авторы объясняют отсутствием психологической поддержки пациентам после оперативного вмешательства, необходимостью иммуносупрессивной терапии и экономической составляющей лечения. **Выводы.** Оценка качества жизни следует рассматривать как обязательный компонент анализа качества и эффективности ведения пациентов с хронической болезнью почек, в т.ч. на терминальной стадии. В работе объективно продемонстрировано ухудшение качества жизни и отдельных его компонентов при прогрессировании хронической болезни почек. При терминальной стадии хронической болезни почек качество жизни по ряду важнейших показателей оказалось ниже у больных, получающих программный гемодиализ по сравнению с пациентами после трансплантации почки.

**Ключевые слова:** хроническая болезнь почек, качество жизни, трансплантация, гемодиализ, SF-36.

## QUALITY OF LIFE IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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**Aim** to study the quality of life (QOL) of patients with chronic kidney disease (CKD) in the Republic of Tajikistan. **Materials and Methods.** The study was conducted in 2016-2018 and included 319 patients with CKD (of them – 58.9% men, with CKD I-IV stages – 121, receiving long term hemodialysis – 109, after kidney transplantation – 89) and 103 relatively healthy individuals (control group, men – 53.4%). The main causes of CKD were glomerulonephritis, di-



abetes mellitus, and pyelonephritis. QOL was evaluated by the SF-36. **Results.** Impairment of the quality of life in patients with CKD was demonstrated in most parameters, both in comparison with the control group and with progression of CKD. In the terminal stage of CKD the quality of life evaluated by some parameters (bodily pain, general health, physical health, social functioning) was lower in patients dependent on program hemodialysis than in patients after kidney transplantation. The parameters of mental and psychological health did not show any differences between these groups which is explained by the authors as due to lack of psychological support after surgical intervention, to necessity of using immunosuppressive therapy and to the economical constituent of treatment. **Conclusions.** Evaluation of the quality of life should be an obligatory component of the analysis of the quality and effectiveness of management of patients with chronic kidney disease including those at the terminal stage. In the work, impairment of the quality of life and of its separate parameters in progression of chronic kidney disease was objectively demonstrated. At the terminal stage, the quality of life evaluated by some most important parameters was lower in patients receiving program hemodialysis than in patients after transplantation of kidney.

**Keywords:** *chronic kidney disease, quality of life, transplantation, hemodialysis, SF-36.*

The amount of patients with chronic kidney disease (CKD) is steadily growing in the world including the Republic of Tajikistan [1,2].

According to the epidemiological research, the causes of CKD significantly differ in high-income, medium-income and low-income countries which influences both the therapeutic approach to the given group of patients, and its prognosis [3]. Progression of CKD requires permanent hemodialysis and kidney transplantation over time.

Chronic progressive course of CKD produces a considerable influence on the daily activity and habitual life of patients. In recent years, in the Republic of Tajikistan different aspects of treatment of CKD have been studied and introduced, in particular, about 100 kidney transplantations are performed per year. Despite this, little attention was given to study of the quality of life (QOL) of patients which, in our opinion, limits full evaluation of the effectivity of methods of management of patients with CKD [1,2,4].

Thus, the *aim* of our work was to study QOL of CKD patients in the Republic of Tajikistan.

## Materials and Methods

The study was conducted in the period from 2016 to 2018. The protocol of study was approved by Ethic Committee of Avicenna Tajik State Medical University. Patients and relatively healthy individuals included into the study, signed the informed content for their participation.

QOL was evaluated using SF-36 QOL questionnaire.

In total, 319 patients with CKD were examined (of them 188 – 58.9% of men) and 103 relatively healthy individuals (control group). Patients with CKD were divided into the following groups: patients with I-IV stage CKD (n=121); hemodialysis-dependent patients (n=109); patients after transplantation of kidney (n=89). Demographic and clinical characteristics of the groups are given in Table 1.

Thus, the main factors that led to CKD were glomerulonephritis, diabetes mellitus and pyelonephritis (Tab. 1). The age of patients in the groups was without any statistically significant differences ( $p>0.05$ ).

Statistical analysis of the data was conducted using application program package Statistica 10.0 (Stat Soft Inc., USA). For qua-

Table 1

**Demographic and Clinical Characteristics of Patients  
Included into Study**

Parameters	Relatively healthy individuals (control group)	Patients with CKD		
		I-IV stages	dependent on hemodialysis	after transplantation of kidney
n	103	121	109	89
Men, % of n	53.4	57.0	63.3	64.0
Mean age, years	45.2	45.7	49.2	48.3
Mean duration of CKD, years	-	1.8	5.4	6.1
Diabetes mellitus, % of n	-	19.0	25.7	24.7
Glomerulonephritis, % of n	-	40.5	46.8	47.2
Pyelonephritis, % of n	-	31.4	23.9	23.6
Polycystic disease of kidney, % of n	-	3.3	1.8	2.2
Urolithiasis, % of n	-	5.8	1.8	3.4
Arterial hypertension, % of n	-	18.2	72.5	74.2
COPD, % of n	-	2.5	5.5	6.7
Cerebral stroke, % of n	-	1.7	0.9	-
Myocardial infarction, % of n	-	5.0	2.8	4.5
Mean duration of hemodialysis in history, months	-	-	8.5	11.5
Smoking at the moment of examination, % of n	5.8	3.3	2.7	2.2
Smoking in history, % of n	5.8	8.3	9.2	7.9
Body mass index, kg/m <sup>2</sup>	22.5	25.4	24.1	23.8
Anemia, % of n	-	17.5	90.7	94.4

litative parameters – shares (%), and for quantitative parameters – median, lower and upper quartiles (Me [25q; 75q]) were calculated. Dispersion analysis was conducted using Kruskal-Wallis H-test for comparison of several independent groups, and using Mann-Whitney U-test for comparison of independent groups in pairs. The null hypothesis was rejected at  $\alpha = 0.05$ .

### Results and Discussion

Analysis of the results of SF-36 questionnaires in the studied groups identified the following regularities (Tab. 2).

Undoubtedly, with progression of CKD, a statistically significant impairment of the quality of life of patients was noted (Tab. 2). Here, physical and role functioning did not reach differences in hemodialysis-dependent patients and in patients after transplantation of kidney. It is also interest-

ing that patient who underwent transplantation of kidney, evaluated general condition of their health rather high (absence of statistically significant differences with the group of relatively healthy individuals). However, the parameter of physical health showed a significant difference between 3<sup>rd</sup> and 4<sup>th</sup> groups of patients ( $p < 0.001$ ). Such important parameter as vitality did not show differences between the groups of patients with I-IV stage CKD and of patients after transplantation of kidney ( $p > 0.05$ ). It should also be noted that mental and psychological health in all groups of patients with CKD did not reach normal parameters (the level of control group,  $p < 0.001$ ), but did not differ between dialysis-dependent patients and patients after transplantation ( $p > 0.05$ ).

Before discussion of the obtained results it should be said that at present the main

Table 2

*Quality of Life of Patients with CKD according to SF-36 Questionnaire*

Sections of questionnaire	Relatively healthy individuals (control group)	Patients with CKD			P
		I-IV stages	dependent on hemodialysis	after transplantation of kidney	
n	103	121	109	89	-
PF (Physical Functioning)	80.0 [75.0; 90.0]	80.0 [65.0; 85.0], $p_1 < 0.01$	55.0 [40.0; 70.0], $p_1 < 0.001$ , $p_2 < 0.001$	65.0 [50.0; 70.0], $p_1 < 0.001$ , $p_2 < 0.001$	<0.001
RP (Role-Physical Functioning)	80.0 [70.0; 85.0]	55.0 [50.0; 65.0], $p_1 < 0.001$	45.0 [30.0; 60.0], $p_1 < 0.001$ , $p_2 < 0.01$	45.0 [35.0; 50.0], $p_1 < 0.001$ , $p_2 < 0.001$	<0.001
BP (Bodily Pain)	94.0 [92.0; 97.0]	70.0 [65.0; 74.0], $p_1 < 0.001$	43.0 [40.0; 46.0], $p_1 < 0.001$ , $p_2 < 0.001$	65.0 [62.0; 68.0], $p_1 < 0.001$ , $p_3 < 0.001$	<0.001
GH (General Health)	66.0 [59.0; 72.0]	45.0 [41.0; 49.0], $p_1 < 0.001$	31.0 [28.0; 33.0], $p_1 < 0.001$ , $p_2 < 0.001$	61.0 [55.0; 65.0], $p_2 < 0.001$ , $p_3 < 0.001$	<0.001
PH (Physical Health)	53.9 [51.0; 55.8]	48.5 [46.0; 50.6], $p_1 < 0.001$	41.9 [37.6; 48.1], $p_1 < 0.001$ , $p_2 < 0.001$	49.0 [46.1; 51.5], $p_1 < 0.001$ , $p_3 < 0.001$	<0.001
VT (Vitality)	75.0 [65.0; 80.0]	50.0 [40.0; 55.0], $p_1 < 0.001$	60.0 [40.0; 85.0], $p_1 < 0.001$ , $p_2 < 0.001$	45.0 [40.0; 50.0], $p_1 < 0.001$ , $p_3 < 0.001$	<0.001
SF (Social Functioning)	80.0 [75.0; 84.0]	69.0 [64.0; 75.0], $p_1 < 0.001$	33.0 [31.0; 36.0], $p_1 < 0.001$ , $p_2 < 0.001$	57.0 [50.0; 62.0], $p_1 < 0.001$ , $p_2 < 0.001$ , $p_3 < 0.001$	<0.001
RE (Role-Emotional)	92.0 [89.0; 96.0]	61.0 [55.0; 67.0], $p_1 < 0.001$	21.0 [17.0; 29.0], $p_1 < 0.001$ , $p_2 < 0.001$	15.0 [12.0; 18.0], $p_1 < 0.001$ , $p_2 < 0.001$ , $p_3 < 0.001$	<0.001
MH (Mental Health)	65.0 [60.0; 71.0]	50.0 [40.0; 60.0], $p_1 < 0.001$	40.0 [30.0; 48.0], $p_1 < 0.001$ , $p_2 < 0.001$	43.0 [36.0; 49.0], $p_1 < 0.001$ , $p_2 < 0.001$	<0.001
MH (Psychological Health)	44.0 [41.2; 46.2]	30.3 [26.8; 32.3], $p_1 < 0.001$	15.7 [11.0; 25.2], $p_1 < 0.001$ , $p_2 < 0.001$	14.4 [11.3; 16.0], $p_1 < 0.001$ , $p_2 < 0.001$	<0.001

Note: p – statistically significant differences between all the groups (Kruskal-Wallis H-test);  $p_1$  – statistically significant differences with the group of relatively healthy individuals;  $p_2$  – statistically significant differences with the group of patients with I-IV stage CKD;  $p_3$  – statistically significant differences with the group of hemodialysis-dependent patients ( $p_1$ - $p_3$  – for Mann-Whitney U-test); p values are given only in case of statistical significance

methods of treatment of patients with terminal forms of CKD are program hemodialysis (PH) and transplantation of kidney. PH is usually conducted for years and is associated with development of certain complications concerning vascular access, which requires many repeated operations including non-standard ones [5]. Limitations in physical activity, in nutrition and in daily life of patients with PH negatively influence the quality of their life that was demonstrated in our study (in comparison with the group of healthy individuals and with the group of patients with I-IV CKD stages). Besides, it should be noted that patients dependent on PH are usually individuals of the working age (the average age in our study was 49.2 years with the duration of application of hemodialysis not more than one year). In other words, even with short periods of dependence on PH, QOL of patients with CKD is considerably impaired.

I.A. Vasilyeva, et al. (2013) also recorded a decline in the total parameter of the physical component of QOL ( $p < 0.0001$ ) in CKD progression. Besides, the authors showed reduction in the physical activity, in satisfaction of a patient with the condition of health and the negative dynamics of all parameters of physical component of QOL in long-term application of hemodialysis. According to these authors, parameters of psychosocial component of QOL did not show significant difference in progression of CKD [6]. However, in our study we identified statistically significant changes in the mental and psychological health of patients with progressing CKD.

S.I. Gazhva, et al. (2013) showed in their work that the main role in impairment of QOL in hemodialysis-dependent patients is evidently played by the psychological component [7]. Interesting data were obtained by D.A. Elfimov, et al. (2017). The authors did not find any reliable impairment of QOL in

patients with CKD after the first year of dialysis therapy [8].

Our study also showed that mental and psychological health did not differ between PH-dependent patients and those with transplantation of kidney. We believe that mental and psychological health did not improve after transplantation of kidney mostly due to absence of psychological support and to necessity of using immunosuppressive therapy. Here, economic component of treatment could also produce a considerable influence on the given component of QOL.

As to limitations of the given study, we think they are associated with the peculiarities of the used questionnaire. According to literature data, a drawback of evaluation of the quality of life in the most popular questionnaires is absence of evaluation of spiritual and cultural convictions and of personal problems of patients [9,10]. In our opinion, this could produce a considerable influence on evaluation of parameters of QOL of both dialysis-dependent patients with CKD and patients after transplantation of kidney.

### Conclusions

1. Evaluation of the quality of life should be considered an obligatory component of the analysis of the quality and effectiveness of management of patients with chronic kidney disease including those at the terminal stage.

2. In the work, considerable impairment of the quality of life and of its separate components in patients with progressive chronic renal failure was objectively demonstrated.

3. In the terminal stage of chronic kidney disease, the quality of life in some parameters (bodily pain, general health, physical health, social functioning) was lower in patients dependent on program hemodialysis than in patients who underwent transplantation of kidney. By parameters of mental and psychological health no difference was found between these groups.



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**Дополнительная информация [Additional Info]**

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