

Peculiarities of social, psychological and physiological adaptation of patients with urolithiasis

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Detsyk O, Solomchak D. Peculiarities of social, psychological and physiological adaptation of patients with urolithiasis. *Med Og Nauk Zdr.* 2016; 22(2): 161–164. doi: 10.5604/20834543.1208224

Abstract

Introduction. Urolithiasis affects the young working population and due to frequent recurrences, accompanied by severe pain syndrome, leads to a feeling of discomfort, and reduces the quality of life of patients and their biological and social adaptive possibilities.

Objective. To study the peculiarities of social, psychological and physiological adaptation of patients with urolithiasis in order to propose preventive measures.

Materials and method. A retrospective epidemiological study was conducted of a representative sample of 443 patients with urolithiasis: a study group – 403 patients without recurrences and 40 with recurrences, and a control group – 203 patients without urolithiasis, at their discharge from the urologic in-patient departments of health care facilities of Ivano-Frankivsk region, Ukraine.

Results. It was established that urolithiasis is accompanied by psychological isolation of patients, manifested in the feeling of loneliness (OR = 1.44; 95% CI = 1.03–2.02). The social and psychological patient' adaptation decreases with the recurrence of urolithiasis, as evidenced by the growth of odds of disability due to disease (4.39; 2.23–8.65), sleep disorders (3.91; 1.62–9.40), dependence of medicines (2.97; 1.49–5.93), dissatisfaction with life (2.67; 1.20–5.94) and health (2.45; 1.27–4.76), reduction in social contacts (2.24; 1.09–4.57), and pain (2.09; 1.24–3.51). The occurrence of urolithiasis leads to tension, unsatisfactory status and breakdown of physiological adaptation mechanisms (1.64; 1.01–2.68), significantly enhanced with progression of disease (2.39; 1.03–5.57).

Conclusion. The occurrence, and especially recurrence, of urolithiasis is accompanied by progression of social and psychological as well as physiological disadaptation. This should be considered in developing individual rehabilitation programmes.

Key words

urolithiasis, social, psychological and physiological adaptation

INTRODUCTION

Urolithiasis is one of the most widespread urologic diseases worldwide. Moreover, according to the scientists' prognosis, prevalence of this renal disease will continue to increase [1].

Urolithiasis is characterized by frequent recurrences (30–80%), causing the exacerbation of chronic pyelonephritis and renal failure emergence [2, 3, 4]. It requires long-term treatment and leads to temporary and especially to permanent disability of nearly 20% of patient, and therefore to significant social and economic losses [1, 5].

The medical and social importance of urolithiasis is that the disease develops in two-thirds of patients between the ages of 20–50 years [6, 7]. On the other hand, frequent recurrences, accompanied by severe pain syndrome, lead to a feeling of discomfort, reduces the quality of life of the patients, and their biological and social adaptive possibilities [8]. The consequence of this is a reduction in the working capacity of patients. All of this emphasizes the importance of prevention and efficiency of metaphylaxis (anti-recurrence treatment) of urolithiasis.

OBJECTIVE

The aim of the study was to investigate the peculiarities of social, psychological and physiological adaptation of patients with urolithiasis in order to propose preventive measures.

MATERIALS AND METHOD

A medical and social study was undertaken at the Inpatient Departments of health facilities in the Ivano-Frankivsk Region of the Ukraine. The survey was conducted by specially-trained interviewers at the discharge of urological patients. This made it possible to use a clinical examination of patients for referral to the study group. The basic group consisted of a representative sample of 443 patients with urolithiasis. As a control group, 203 patients were interviewed who had been discharged with recovery after treatment for other predominantly acute urological pathology, namely: acute pyelonephritis (63.1%), acute prostatitis (11.3%), and hyperplasia of the prostate (8.9%), acute cystitis (5.9%), and other (water shell testis, phimosis, acute orhoepidydymid and urethral stricture (10.8%).

The two groups did not differ by gender and place of residence, and were represented evenly by male and female and residents of urban and rural areas (about 50%). However,

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Received: 22 December 2015; accepted: 25 May 2016

the age structure of the patients with urolithiasis, apparently due to the fact that this is a chronic condition, differed from those in the control group. The age distribution of the comparison group was: among patients with urolithiasis under the age of 30 was 16.0%, and in the control group – 26.1%; 30–39 years – 15.8% vs. 21.2%, respectively; 40–49 years – 17.4% vs. 20.7%; 50–59 years – 25.3% vs. 17.2%; 60 and over – 25.55 vs. 14.8% ($p < 0.001$).

In order to identify risk factors of urolithiasis recurrence, the basic group was divided into two subgroups: without recurrences (403 patients) and with recurrences (40 patients).

The study was approved by the Bioethics Commission of Ivano-Frankivsk National Medical University (Protocol No. 79/14 of 01.10.2014).

Each respondent originally signed informed consent to participate in the study. In the questionnaire, except for the standard quality of life interviewer EQ-5, other issues were included in accordance with the objectives of the study. In particular, the following components of social and psychological adaptation and quality of life were studied: level of satisfaction with health and life, conflicts within the family and working groups, a feeling of loneliness, social activity, etc.

The objective criterion of physiological adaptation was functional state of cardiovascular and autonomic nervous systems, assessment on the basis of systolic and diastolic blood pressure and heart rate by the method of V. Kaznacheev [9]. The level of adaptation mechanisms was evaluated as:

- satisfactory, to 75 beats/min and to 120/80 mmHg in males; to 80 beats/min and to 120/90 mmHg in females;
- tension, to 85 beats/min and to 130/85 mmHg in males, to 90 beats/min and to 130/90 mmHg in females;
- unsatisfactory, to 95 beats/min and to 140/85 mmHg in males; to 95 beats/min and to 135/90 mmHg in females;
- breakdown, over 95 beats/min and over 140/85 mmHg in males; over 95 beats/min and to 140/90 mmHg in females.

Results of the study were received mainly as qualitative data, which was the reason why different ways of calculation were used – each prevalence factor per 100 respondents and the standard error for relative values [10]. Estimation of the reliability of the data difference in the comparison of groups was performed by using χ^2 test [10]. The uneven age structure of the compared groups eliminated using the direct method of standardization. Thus, a standard population was identified by the age distribution of the total number of the two groups of respondents [10]. Taking into account that the presented study had a retrospective epidemiological design, the method of calculation of the Odds Ratio and its 95% Confidential Interval were used to identify the risk factors for the occurrence and recurrence of urolithiasis [10].

RESULTS

It was found that the majority of patients with urolithiasis, regardless of their gender and place of residence, were dissatisfied with their own health. Only four respondents ($0.9 \pm 0.5\%$) considered their health as excellent and about one-fifth ($21.6 \pm 2.0\%$) as good (Fig. 1). Half of the respondents ($50.7 \pm 2.4\%$) estimated their health as satisfactory, while those who were completely dissatisfied with their health, just over a quarter ($26.8 \pm 2.1\%$). It was evident that the percentage of

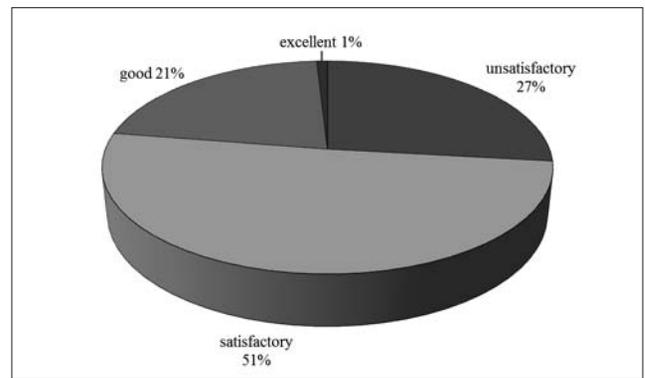


Figure 1. Results of self-evaluation of health by patients with urolithiasis

those dissatisfied increased with age: from $15.7 \pm 4.3\%$ aged less than 30 years to $37.2 \pm 4.5\%$ of respondents aged over 60 years ($p < 0.001$).

There was shown that it was not so much age as disease progression and recurrence of the disease that affected the health and quality of life of the patients. This is proved by the following fact, that the application of standardization indicators by age did not confirm that it is a dominant factor of dissatisfaction with health. However, the odds ratio calculation results proved that with urolithiasis recurrence, the likelihood of low self-esteem of health increases ($OR = 2.45$; $95\% CI = 1.27-4.76$; $p < 0.01$). As a result, almost half of the patients with recurrent urolithiasis ($45.0 \pm 7.9\%$) considered their health as unsatisfactory, while only 5.0% as good. A possible reason for this may be the limitation of life activity due to the long-term chronic disease. As an illustration, only about a quarter ($27.4 \pm 2.1\%$) of respondents with urolithiasis, regardless of their gender and place of residence, indicated that the disease did not affect their vital functions. But among the remaining part of the study group, almost a half of the respondents considered that the disease partly limited their life activity ($54.2 \pm 2.4\%$), and one in five ($18.4 \pm 1.8\%$) that it completely limited life activities. The intensity of life activity limitation, as well as dissatisfaction with health, also increased with the age (Fig. 2).

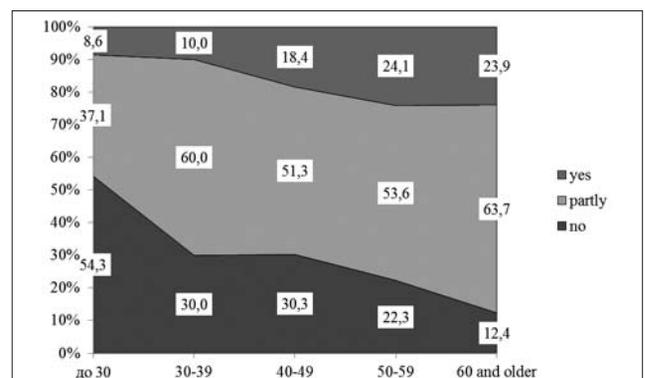


Figure 2. Intensity of the life activity limitation of the patients with urolithiasis depending on age (according to self-evaluation data)

However, an in-depth study of this factor additionally established that such changes are caused not only by age, but also by the progression and recurrence of the disease. This indicates that the answers of patients in the study and control groups, did not generally differ ($p > 0.05$), and the standardized rates by age was almost indistinguishable from

the real indicators, although the presence of urolithiasis recurrence increased odds of significant disability 2–8-fold (OR = 4.39; 95% CI = 2.23–8.65; $p < 0.001$).

Significant differences were also established in the reasons for limitation of life activity due to disease, where the most often marked answers of the respondents represented the feeling of exhaustion among patients with urolithiasis, as well as patients in control group – 31.6–40.1% ($p > 0.05$) (Fig. 3). At the same time, patients with urolithiasis, with and without recurrences, had a significantly higher odds presence of pain (OR = 2.09; 95% CI = 1.24–3.51), and suffered more than the patients in the control group – 39.7–42.1% vs. 24.2% ($p < 0.01$). On the other hand, patients of control group more often complained about their decreased performance (43.2% vs. 25.5–31.6% of patients with urolithiasis, $p < 0.01$; OR = 0.47; 95% CI = 0.29–0.75). Obviously, patients with the chronic disease eventually adapted and learned to live and work with urolithiasis, as opposed to those first confronted with the urological disease and in-patient treatment.

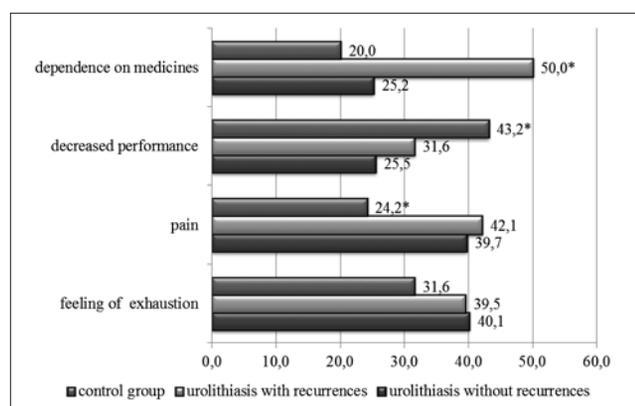


Figure 3. Characteristics of the main causes of life activity limitation due to disease per 100 respondents.

* significant difference between compared groups

It should be noted that the progression and recurrence of urolithiasis leads to growing dependence on the medicines (OR = 2.97; 95% CI = 1.49–5.93), (Fig. 3), which was reported by 50.0% of patients with urolithiasis with recurrences versus 25.2% of patients with urolithiasis without recurrence, and 20.0% of the control group ($p < 0.01$). Besides, more than half of three patients with urolithiasis (53.8±2.4%) had sleep problems. Sleep disorders quite logically increased with age, from 28.5±5.4% in young (under 30 years) to 69.6±4.3% in old age ($p < 0.001$), and more often affected females (63.6±3.2%) than males (43.1±3.4%, $p < 0.001$). The differences between the study and control groups on this parameter ($p > 0.05$) were not determined, and the standardized rates by age also did not differ from the previous indicators. However, disease progression accompanied by increasing complaints of sleep disturbance to 80.0±6.3% (OR = 3.91; 95% CI = 1.62–9.40; $p < 0.001$).

The complaints about distresses in their lives were quite prevalent among the respondents. Constant feelings of anxiety and depression, regardless of age, place of residence and stage of the disease ($p > 0.05$), were experienced by almost every fifth patient with urolithiasis (21.8±2.0%). The majority (67.0±2.2%) of them had such complaints periodically, and only a tenth of the study group of respondents (11.1±1.5%) almost never experienced feelings of stress. No specific

differences were established when compared with the control group ($p > 0.05$). Females with urolithiasis somewhat more often complained about constant stress – 28.6±3.0% vs. 14.6±2.4% of males ($p < 0.001$).

The presented study did not indicate any proof that the presence of urolithiasis destructively affects relationships in families and working groups ($p > 0.05$). However, it was established that urolithiasis often leads to psychological isolation of the patients; thus, over 60% of these patients, regardless of age, indicated that from time to time (55.5±2.4%) or constantly (7.6±1.3%) felt lonely. This does not coincide with the objective data of family status, where the proportion of people not married was twice as low. Indeed, regarding marital status, most respondents in the study group were married (73.6±2.1%), the remainder were never married (10.9±1.5%), widowed (9.5±1.4%), or divorced (5.9±1.1%). Such a discrepancy between the subjective feeling and real marital status, as well as evidentiary data, proves the hypothesis that the presence of urolithiasis significantly increases the odds of the feeling of loneliness (OR = 1.44; 95% CI = 1.03–2.02). However, the difference was not determined concerning psychosocial factors among patients with urolithiasis, with and without recurrence ($p > 0.05$).

It is known that the feeling of loneliness can be compensated by social activity – visiting friends and people who have a mutual interest, clubs, associations, churches, etc. The study of this parameter showed that only half of the interviewed patients with urolithiasis (50.1±2.4%) mentioned active participation in public life. Social activity insignificantly decreased with age (from 59.0% less than 30 years at 44.1% over 60, $p > 0.05$). The possibilities of social contacts were naturally worse among rural population than in urban areas, and therefore the corresponding rates were 43.0±3.4% vs. 57.0±3.3% ($p < 0.05$).

No significant differences were determined in social activity among the patients with urolithiasis and the control group ($p > 0.05$); the standardized rates by age was practically equal to the real indicators. However, it was established again that the presence of urolithiasis recurrence decreases the odds of constant social contacts (to 32.4±7.7%, OR=2.24; 95% CI=1.09–4.57; $p < 0.05$), and thereby the quality of a patient's life. It should also be noted that the majority of patients with urolithiasis, regardless of their age, gender, and place of residence, expressed dissatisfaction with life in general – 61.8±2.3%. The answers of the respondents of the control group were similar ($p > 0.05$), but urolithiasis recurrence increased the odds of such feeling to 80.0% (OR=2.67; 95% CI=1.20–5.94; $p < 0.05$). This means that the existence of such chronic diseases as urolithiasis, especially with recurrence (Fig. 4), have negative impacts on patients' psychosocial adaptation and therefore quality of life.

The use of objective criteria assessment of adaptive mechanisms on the basis of blood pressure and heart rate by the method of V. Kaznacheev [4] generally confirmed the hypothesis. The presence of urolithiasis leads to tension, unsatisfactory status and breakdown of adaptation mechanisms (OR=1.64; 95% CI=1.01–2.68; $p < 0.05$), significantly enhanced with progression of disease (OR=2.39; 95% CI=1.03–5.57; $p < 0.05$) (Fig. 5).

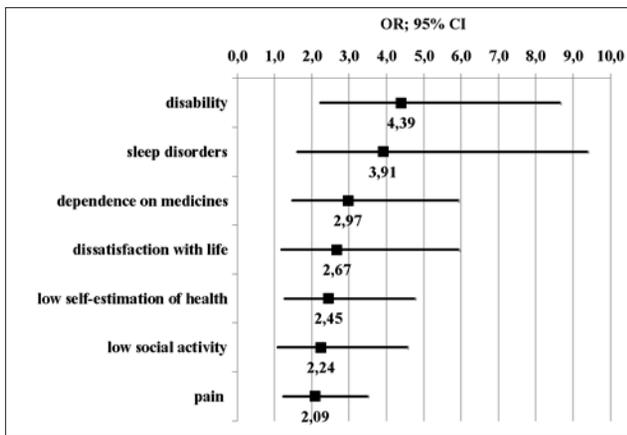


Figure 4. Factors of social and psychological disadaptation in urolithiasis recurrence

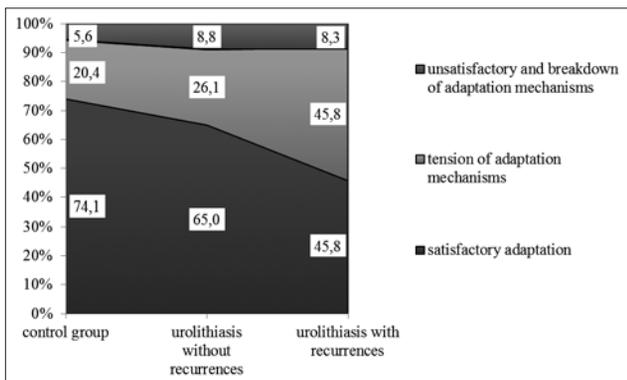


Figure 5. Comparative characteristics of surveyed distribution by status of adaptive mechanisms

DISCUSSION

It is known that the chronic disease causes a wide spectrum of psychogenic reactions that called 'nosogenous' [11]. Such researchers as O.E. Ilyina [12] and A. A. Filts et al. [11] believe that studying them with urolithiasis are very important because they reflect the patients' adaptive peculiarities and give a new level to the pathological process of understanding opportunities for selection of adequate individual treatment. Thus, O.E. Ilyina [12] determined the important components of social adaptation: somatic (physical) – attitude to health and its changes, personal (individual psychological) – attitude to oneself, mood, thoughts and behavior; situational (socio-psychological) – attitude to life situations. In studies by M. Bryant et al. [13], K.L. Peniston, S.Y. Nakada [14], V.E. Ryazantseva et al. [15] and L.O. Balka [16], have proved that the physical and psychological suffering of patients with urolithiasis cause reduction in their life quality. L. O. Balka's research emphasized the relationship between symptoms of socio-psychological disadaptation of patients with urolithiasis and the reduction of their quality of life [8], and also substantiated the necessity of medical and psychological care for such patients [17].

CONCLUSIONS

It was established that urolithiasis is accompanied by psychological isolation the patients, which is manifested in the feeling of loneliness in approximately 60% of patients

– more than twice the number of lonely according to objective data.

It was showed that the social and psychological adaptation of the patients decreases with the progression and recurrence of urolithiasis, as evidenced by the growth of odds of disability due to disease, sleep disorders, necessity for a constant intake of medicines, dissatisfaction with life and health, reduction in social contacts, and pain.

It was proved that the occurrence and progression of urolithiasis is also accompanied by growth objective displays of tension, unsatisfactory status, and breakdown of physiological adaptive mechanisms.

The growth of social and psychological as well as physiological disadaptation with the progression of urolithiasis detected in the study should be considered when developing individual rehabilitation programmes, if necessary with the involvement of a psychologist.

Taking into account the presented study data, prospects for further research are indicated for the development of preventive measures of urolithiasis recurrences.

REFERENCES

1. Türk C, Knoll T, Petrik A, Sarica K, Skolarikos A, Straub M, Seitz C. EAU Guidelines on urolithiasis. *Eur Assoc Urol.* 2015; 1–71.
2. Rossikhin VV, Hoschenko UA. [The results of use of herbal medicine "URSOHOL" in patients with urolithiasis complicated by chronic calculous pyelonephritis]. *Medicus Amicus.* 2009; 2: 30–31 (in Ukrainian).
3. Fedoruk OS, Viznyuk VV, Krokosh VM. [Condition of lipid peroxidation and blood biochemical parameters of patients with urolithiasis complicated by pyelonephritis]. *Clin Experimental Pathol.* 2013; 3(45): 186–188 (in Ukrainian).
4. Michelle Jo Semins, Brian R. Matlaga Medical Evaluation and Management of Urolithiasis. *Ther Adv Urol.* 2010; 2(1): 3–9.
5. Vozianov AF, Pasychnikov SP, Saydakova NA, Dmytryshyn SP. [Dynamics of morbidity and prevalence of urolithiasis in the adult population of Ukraine]. *Zdorovye muzhchyny.* 2010; 2(33): 17–24 (in Ukrainian).
6. Borzhiyevskyy A.TS. *Ureterolitiaz: (urological aspects).* Lviv: Publishing House "Vysoky Zamok". 2007. 263p.
7. Knoll T. Epidemiology, Pathogenesis and Pathophysiology of Urolithiasis. *Eur Urol Suppl.* 2010; 9: 802–806.
8. Balka LO. [Clinical pathopsychological, individual psychological and psychosocial factors in the genesis of desadaptation of patients with urolithiasis of one kidney]. *Medychna psykholohiya.* 2014; 3: 22–29 (in Ukrainian).
9. Kaznacheev VP, Bayevsky PM, Berseneva AP. [Pre-nosological diagnostics in the practice of mass examinations of population]. Leningrad. *Medicine.* 1980. 208 p. (in Russian).
10. Forthofer RN, Lee ES, Hernandez M. *Biostatistics: A Guide to Design, Analysis, and Discovery.* Amsterdam. Elsevier Academic Press. 2007. 502 p.
11. Filts AA, Mironenko AI, Bohuta JR, Fitkalo OS, Kechur RV, MJ Danilko. [Typology of nozogenic reactions with urolithiasis]. *Bukovynskyy medychnyy visnyk.* 2013; 17(4): 163–168 (in Ukrainian).
12. Ilyina OA. [Social and psychosocial desadaptation of the patient suffering from urolithiasis]. Dissertation. 19.00.05. Yaroslavl. 2000; 165 p. (in Russian).
13. Bryant M, Angell J, Tu H, Goodman M, Pattaras J, Ogan K. Health related quality of life for stone formers. *J Urol.* 2012; 188 (2): 436–440.
14. Penniston KL, Nakada SY. Development of an instrument to assess the health related quality of life of kidney stone formers. *J Urol.* 2013; 189(3): 921–930.
15. Ryazantsev VE, Demin EA, Ryazantsev EV, Cherapkin AV. [Gender and age characteristics of the quality of life of patients with urolithiasis]. *Mezhdunarodnyy nauchno-ysledovatel'skiy zhurnal.* 2013; 10–5(17): 26–28 (in Russian).
16. Balka LO. [Individual psychological and psychosocial features of the patients with urolithiasis or a single kidney]. *Medychna psykholohiya.* 2014; 2: 74–81 (in Ukrainian).
17. Balka LO. [Justification of the general principles of medical and psychological care to patients with urolithiasis or a single kidney]. *Medychna psykholohiya.* 2015; 2: 53–56 (in Ukrainian).