

A PROSPECTIVE STUDY ON QUALITY OF LIFE IN PATIENTS WITH URINARY CALCULI

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ABSTRACT

Objective: The objective of the study is to compare the quality of life (QoL) in both men and women with urinary calculi using SF-12 questionnaire and also to improve by patient education. Patient counseling can scientifically improve the physical and mental component of certain diseases that could be a relief to the patient. Non-pharmacological approaches could be an alternative to the drug therapy.

Methods: The present study involves prospective study on QoL in patients with urinary calculi. The methodology involves the collection and documentation of general information of the patient including personal history, family background, clinical findings, investigations, and medical illness associated with urinary calculi. Further, quality is documented using SF-12 questionnaire designed to assess the impact of urinary calculi and their complications.

Result: It can be seen that there is an extremely significant ($p < 0.0001$) values were obtained when compared between pre- and post-counseling phases of physical and mental component scores (PCS and MCS). Patient's PCS and MCS improved extremely significant in post-counseling.

Conclusion: Patients counseling plays a major role in the management of signs and symptoms among patient with urinary calculi. Clinicians should be aware of the risk of impaired health-related QoL (HRQoL) in stone formers. A new and promising endpoint in the management of urolithiasis is improvement of HRQoL.

Keywords: Quality of life, Urinary calculi, Patient counseling, Questionnaire, Physical component score, Mental component score.

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INTRODUCTION

Urinary calculi are solid particles in the urinary system. They may cause pain, nausea, vomiting, hematuria, and possibly, chills and fever due to secondary infection. Diagnosis is based on urinalysis and radiologic imaging, usually noncontract helical computed tomography. Treatment is with analgesics, antibiotics for infection, medical expulsive therapy, and sometimes, shock wave lithotripsy or endoscopic procedures [1]. The common types of stones include calcium, uric acid, struvite, and cystine stones [2].

Counseling can improve patient's physical and mental symptoms that could be a relief to the patient. Non-pharmacological approaches such as effective patient counseling could be a support for the drug therapy to improve the condition of the patients [3].

Health-related quality of life (HRQoL) is studied to understand the physical, mental, emotional, and social functioning of patients. Urinary calculi are mainly based on the pain factor, and hence, monitoring the QoL would enable us to improve the patient perspective.

Penniston *et al.* conducted a study on "HRQoL differs between male and female stone formers." Comorbidities such as depression, diabetes, hypertension, and overweight/obesity contributed to lower scores for many health domains. The HRQoL of stone formers, especially women, is compromised compared to the US norms. Women stone formers scored lower than men for physical and mental health [4].

Raja *et al.* conducted study on "How do urinary calculi influence HRQoL and patient treatment preference: A systematic review University Hospital of Wales." The objective of this study is to assess the QoL to understand what major symptoms and other HRQoL factors are

associated with urinary stone disease and how those factors/symptoms affect the choices people make with regard to treatment [5].

Karim Bensalah *et al.* conducted study on "Determinants of QoL for patients with kidney stones in American population: A prospective study." Patients with stone scored lower than the average population. Various factors impact the QoL in patients with urinary calculi, but the most are body mass index (BMI) and age was the strongest predictors of decreased physical well-being. The number of stone episodes did not influence SF-36 score and it is the number of surgical procedure impacted physical and mental components [6].

The main aim of the study was to assess the QoL in patient with urinary calculi. The extent of impairment of HRQoL in patients with urinary calculi will be evaluated using the score obtained from a scientifically designed questionnaire.

MATERIALS AND METHODS

Materials

The study is carried out in a tertiary care hospital:

- Study period: 9 months
- Study instruments: SF-12 questionnaire.

Inclusion criteria

- I. Inpatients diagnosed with urinary calculi
- II. Willing to participate in completing the SF-12 questionnaire
- III. Patients of age group 18-60 years
- IV. Post-operative patients.

Exclusion criteria

- I. Patients of age above >60 years
- II. Pregnant women's
- III. Patients with psychiatric complications.

Methods

Study design

This method involves prospective analysis of QoL in urinary calculi. The study will be carried out by the collection and documentation of general information of the patient including personal history, family background, clinical findings, investigations, and medical illness associated with urinary calculi. Further, QoL will be documented using SF-12 questionnaire designed to assess the impact of urinary calculi and their complications.

Study instrument

SF-12 questionnaire: The SF-12® health survey includes 12 questions from the SF-36® health survey (version 1). These include 2 questions concerning physical functioning, 2 questions on role limitations because of physical health problems, 1 question on bodily pain, 1 question on general health perceptions, 1 question on vitality (energy/fatigue), 1 question on social functioning, 2 questions on role limitations because of emotional problems, and 2 questions on general mental health (psychological distress and psychological well-being). Finally, the documented questionnaire is evaluated for the outcome. The study was conducted after obtaining informed consent from the patient. This study was approved by the Institutional Ethics Committee IEC/DOPV/2015/18.

RESULTS

The following results were obtained when the data were collected from the patient.

Table 1 shows that out of the 130 selected patients' data, 77 patients (59%) were male patients, and remaining 53 patients (40%) were female patients, the study confirms that males are more affected with urinary calculi when compared to females.

Table 2 shows that out of selected 130 patients, 29 patients (22%) were in age group of 18-25 years, 42 patients (32%) were in age group of 25-35 years, 39 patients (30%) were in age group of 35-50 years, and 20 patients (15%) were in age group of 50-60 years. Hence, in this study, it indicates that more number of people in the age group of 25-35 years is affected with urinary calculi.

Table 3 shows that out of selected 130 patients, 30 patients (23%) had hypertension, 35 patients (26%) had diabetes, 2 patients (1%) had leprosy, 19 patients (14%) had acute renal failure, and 19 patients (14%) had gout.

Table 4 shows that out of selected 130 patients, 26 (26%) patients were security, 8 (8%) patients were carpenter, 40 (40%) patients are homemakers, 5 (5%) patients were farmers, 4 (4%) patients were tailors, 42 (42%) patients were daily labor, and 5 (5%) patients were shopkeepers.

Table 5 shows that it can be seen that there is an extremely significant ($p < 0.0001$) values were obtained when compared between pre- and post-counseling phases of physical and mental component scores (PCS and MCS). Patient's PCS and MCS improved extremely significant in post-counseling.

DISCUSSION

Understanding the nature of urinary calculi and coping up with challenges of this condition can be done with the help of good education and counseling. The patient along with the health-care providers can work together to formulate a therapeutic plan and evaluate both the standard and alternative treatment options.

Urethral stone diseases are among the most painful and prevalent among urologic disorders that can substantially impact HRQoL particularly in patients with a history of recurrent stones.

Table 1: Gender distribution

Serial number	Gender	Number of patients (n=130) (%)
1	Male	77 (59)
2	Female	53 (40)

Table 2: Age distribution

S. No.	Age (years)	Number of patients (n=130) (%)
1	18-25	29 (22)
2	25-35	42 (32)
3	35-50	39 (30)
4	50-60	20 (15)

Table 3: Reported comorbidities in urinary calculi

S. No.	Comorbidities	Number of patients (N=130) (%)
1	Hypertension	30 (23)
2	Urinary tract infection	35 (26)
3	DM	25 (19)
4	Leprosy	2 (1)
5	Acute renal failure	19 (14)
6	Gout	19 (14)

DM: Diabetes mellitus

Table 4: Distribution based on occupation

S. No.	Occupation	Number of patients (n=130) (%)
1	Security	26 (20)
2	Carpenter	8 (6)
3	Homemaker	40 (30)
4	Farmer	5 (3)
5	Tailor	4 (3)
6	Daily labor	42 (32)
7	Shopkeeper	5 (3)

Table 5: PCS and MCS

S. No.	Parameters	Pre-counseling	Post-counseling	p value
1	PCS	33.55±2.96	51.06±2.21	<0.0001*
2	MCS	34.0±2.72	53.60±2.25	<0.0001*

*Indicating that the value is extremely significant. PCS: Physical component score, MCS: Mental component score

This study shows that men were more prone than women, alcohol consumption and family history of kidney stone were significant risk factors for stone occurrence. These results were similar with the results reported by Lee *et al.* [6].

This study shows that diabetes mellitus and lower back pain were also found to have significant impact on HRQoL. The present study was in concord with Rabah *et al.* [7].

On analysis of dietary composition over the period, there was no relationship between the number of dischargers of stones and the household consumption of calcium, oxalate, magnesium, phosphorus, refined carbohydrate, or total protein. There was, however, a marked correspondence between the number of discharges for stones and the consumption of animal protein particularly that derived from meat, fish, and poultry. A fall in the consumption of dietary fiber and an increase in dietary acid may also have contributed to the observed changes in the pattern of stone formation during the study. In Robertson *et al.*'s study [8], increased intake of animal protein may increase the risk of stone formation.

It can be seen that there is an extremely significant ($p < 0.0001$) values were obtained when compared between pre-and post-counseling phases of PCS and MCS. Patient's PCS and MCS improved extremely significant in post-counseling.

CONCLUSION

In this study, 130 urinary calculi patients were included in this study. The aim of the study is to improve the HRQoL among urinary calculi patients. The study concludes that incidence rate of the male patient is affected more than female patient in the age group of 25-35 years, with urinary calculi compared to other age groups.

From this study using SF-12 form to assess the urinary calculi patients' general, physical, mental, social, pain, and limitations (QoL), we conclude that patients with urinary calculi have relatively poor QoL pertaining to physical health components, but less impact was seen on the patients mental health. The QoL is negatively affected by increasing level of pain, age, gender, and social habits. Thus, the present study suggests that the perception and the PCS and MCS are improved in urinary calculi patients after counseling.

Clinicians should be aware of the risk of impaired HRQoL in stone formers. A new and promising endpoint in the management of urolithiasis is improvement of HRQoL. Studies that identify treatment strategies that maintain or improve HRQoL for individual patients are warranted.

Clinical pharmacist plays a major role in improving patient's knowledge and adherence by patient education, developing maintenance of diet, and exercise improved the health of the patient. Further, improvements

in QoL can be made using counseling aids such as pamphlets, patient education tool, dietary chart, and visual aid. Larger studies may reveal better outcome.

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