

An Intervention Program for I Developing Instructional Guidelines for Patients Undergoing Ureteroscopic Lithotripsy

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Abstract

Well Aim: This study aimed to develop instructional guidelines for patients undergoing Ureteroscopic Lithotripsy. **Subjects and Method:** A descriptive explorative design was utilized for the conduction of this study in Urosurgery Department and Urology Outpatients` Clinics at El DemerdashSurgicalHospitalswhichisaffiliatedtoAinShamsUniversityHospitals. A purposive **sample** of (90) adult patients from both genders undergoing ureteroscopic lithotripsy (UL) from the above mentioned settings. **Tools** of data collection were: **1)** Patients` interviewing questionnaire (pre /post procedure) to assess the studied patients` health needs (physical, psychological, social spiritual and educational) **.2)** Numerical pain scale (pre /post procedure) to assess pain severity level. **3)** Hamilt on Anxiety Rating Scale (pre/post procedure) to assess anxiety level. **Results:** Mean age of studied sample was 39.5 ± 5.7 . More than half of them was married, working, males and from urban areas. Moreover, there were higher health needs pre procedure. **Conclusion:** On light of the current study results, it can be concluded that the studied patients had physical, psychological, social, spiritual and educational needs pre the ureteroscopic lithotripsy procedure. In addition, the highest needs pre the procedure were: physical followed by educational, spiritual, psychological and then later social. **Recommendations:** Further research studies are needed to focus on assessment of the quality of life of such group of patients.

Key words: Ureteroscopic Lithotripsy–Health needs- Instructional Guidelines

Introduction

Ureteric stones represent the most common problem in daily emergency department practice. In the last 20 years, options for the management of this problem have changed radically (**Hollingsworth et al., 2012**). Various factors such as size of calculi, severity of symptoms, degree of obstruction, kidney function, location of stone and presence or absence of associated infection influence the choice of one type of intervention over the others (**Dellabella et**

al., 2013). More over, ureteric stones prevalence is relatively high, occurring in approximately 12% of men and 7% of women. The risk is increased with a past history of ureteric stone or with positive family history. Most patients present between 30 and 60 years of age, with peak incidence between 35-45 years old. Initial stones presentation occurring past 50 years of age is uncommon (**Tammet al., 2014**).

Today ureteroscopic lithotripsy is the gold standard treatment of ureter stones all over the world and one of the most commonly performed procedures. Its success rate at clearing these types of stones is generally higher than. Other procedures, is a good choice For very large or oddly shaped stones or stones that are very hard. It is the only minimally-invasive, stone surgery which causes relatively less pain and done through body orifices, allows for early ambulation and it is out patient procedure(**Rosén et al., 2012**).

Ureteroscopic lithotripsy manipulation of a stone is a commonly applied method of stone removal. The success rate of ureteroscopy is over 90% for the majority of stones that are treated this way. Successful stone clearance depends on size and location of stone in kidney or ureter. A small endoscope which may be rigid, semi rigid or flexible is passed into the bladder and up the ureter to directly visualize stone (**Moore et al., 2014**).

Stones smaller than 5 mm in diameter generally are retrieved using a stone basket, a surgeon can take exhaustive lithotripsy to allow for residual stones to pass spontaneously. In large studies comparing this approach has been associated with higher stone-free rates (up to 100%), lower rates of subsequent unplanned emergency department visits and of re-hospitalization (**Tasian et al., 2016**).

Ureteroscope is passed through natural body orifices and involve no skin incisions. It is an outpatients` procedure. Certainpatients` groups who cannot be treated with percutaneous nephrolithotomy (PCNL) such as patients on blood thinners, pregnant women, morbidly obese and airline pilots/astronauts) can be treated safely and effectively by ureteroscopy. Postsurgery patient will be taken to the recovery room. Patient may be discharged from the recovery room to home once pain is controlled and

able to urinate (**Kupeliet al., 2012 and Vincent& Bird, 2015**).

Information is a key factor for optimal management of post-procedural symptoms. Patients undergoing ureteroscopic lithotripsy needs to receive consistent information and effective discharge instructions to be prepared for transition of care from hospital to home. An effective practical discharge advice will increase patients` confidence in managing their care at home, improve health status and make them feel safe and comfortable. It is vital to provide patients with certain guidelines and information about their analgesic regimen, returning to daily activities and dietary advice....etc. (**Nettina, 2014**).

Needs assessments are required to guide care planning in part because many patients do not communicate concerns to their clinicians. In addition, it provide a rich opportunity to more fully understand experiences of the patients. Moreover, careful assessment of patients` needs is central to the whole process of providing care (**Clarke et al.,2011**).It is important that the patient undergoing ureteroscopic lithotripsy needs to be assessed to improve both the quality and value of care provided (**Gdoret al., 2014**)

The health needs include: physical such as: activities of daily living, physical preparation, general assessment, interventional technique, investigations and treatment, pain management, control of nausea and vomiting, diet regimen, complications management and self-care post discharge. Psychological such as: reducing anxiety from pain and complications and information about emotional health lifestyle. Social such as: patient's social activities, work, driving and social support. Spiritual such as: relation with God and motivation (**Akramet al., 2011**).

Significance of the study:

Urinary stones account for about 328,000 hospital admissions each year. The occurrence of urinary stones occurs predominantly in the third to fifth decades of life and affects men more than women. About half of patients with a single ureter stone have another episode within 5 years (Frassetto & Kohlstadt, 2011). In Egypt, the incidence of ureteroscopic lithotripsy procedures in UroSurgical Department at El - Demerdash Hospital were approximately 600 procedures through the year 2014.

Studies within the past ten years have determined that Ureteroscopic Lithotripsy is the preferred approach for treatment of symptomatic ureteric stone diseases, because it is not only safe but also associated with fewer post-operative complications, decreased morbidity and overall cost. Effective pre/post-operative assessment of patients needs is fundamental to provide the safe surgical procedures (Chris et al., 2013). Therefore, this study will be conducted for the purpose of developing instructional guidelines to improve both the quality and value of care for patients under going ureteroscopic lithotripsy.

Aim of the study:

This study aimed to develop instructional guidelines for patients undergoing Ureteroscopic Lithotripsy (UL). This aim was achieved as follows:

- Assess studied patients' health needs (physical, social, psychological, educational and spiritual) as regards Ureteroscopic Lithotripsy.
- Develop instructional guidelines based on studied patients' health needs assessment.

Research Questions:

- What are the health needs among studied patients undergoing Ureteroscopic Lithotripsy?
- Is the developed instructional guidelines based on studied patients health needs assessment?

2. Subjects and method:**Operational definitions:**

Patient's health needs: means physical, psychological, social, spiritual and educational dimensions.

Instructional guidelines: means theoretical and practical sessions.

Undergoing: means pre / postprocedure and follow – up period.

Research design:

A descriptive explorative design was utilized for the conduction of this study.

Setting:

The present study was conducted in Urosurgery Department and Urology Outpatients` Clinics at El Demerdash Surgical Hospitals which is affiliate to Ain Shams University Hospitals.

Subjects:

A purposive sample of (90) adult patients from both genders undergoing ureteroscopic lithotripsy (UL) from the above mentioned settings. They were selected according to the sensitive analysis in relation to the number of patients with ureteroscopic lithotripsy within the year 2016 in the previous settings, according to the statistical department which affiliated to the settings with the following criteria:

Inclusion criteria:

- Conscious adult patients with ureteral calculus undergoing ureteroscopic lithotripsy and with the same management protocol.
- Noco-morbid conditions(e.g. renal failure, cancer, cerebrovascular stroke...etc.).
- Accept to participate in the study

Tools of data collection:

Tool II: Patients` interviewing questionnaire(pre /post procedure).It was designed by the researchers in light of the relevant and related literatures and written in simple Arabic language. Data obtained were related to:

- **Demographic characteristics** of the studied Patients which included (age, weight, height, sex and marital status, number of children, educational level, occupation, monthly income and residence).
- Patients' medical records to identify past, present medical history, diagnosis, investigations and treatment.
- Patients` needs assessment sheet included:
 - **Physical needs:** It included (resuming physical activities, follow prescribed diet, perform exercises, maintain Hygienic measures, sufficient sleeping hours, and relive fatigue).
 - **Psychological needs:** It included(reducing anxiety, sense of safety and security, coping with health conditions, health education, and positive insight toward the procedure).

- **Social needs:** It included (increasing social support/ relations, encourage recreational activities, sexual activity changes, work adjustment, assistance with traveling / transferring and decrease financial burden).
- **Spiritual needs:** It included (feeling of usefulness, increasing satisfaction, improving religious practices, positive vision for the future and sense of inner peace).
- **Educational needs:** It included (definition / causes of ureter stone, signs and symptoms of ureter stone, managment, and advantages of ureroscopic lithotripsy, health education and discharge instructions).

Scoring system:

- Patients' answers were categorized into either yes or no
- Presence of health needs (scored as two marks) or absence (scored as one mark).
- Total items of health needs = 50 items, whereas needs absence were considered from (1– 50) and needs presence from (51 - 100)

Tool II: Psychometric assessment (pre/post procedure) to determine anxiety and pain levels through the following:

- **Numerical pain scale:** It was developed by **Jacques (2011)** to measure pain severity. It was consisted of a line divided by numbered points from (0-10). Patients' responses were categorized and adapted as follows: no pain (zero), mild pain (0 - less than 4), moderate pain (4-less than 7) and severe pain (7 - 10).

- **Hamilton's anxiety rating scale:** It was developed by Hamilton (1959), this scale formed of fourteen variables: anxious mood, tension, insomnia, cognitive changes, depression, somatic (sensory), cardiovascular, respiration, gastrointestinal, genitourinary, autonomic symptoms, somatic (muscular) and the behavior at the interview.

The total score ranged from 0-42 and according to patients' responses the following classifications were adapted: no anxiety (zero), mild anxiety (0 - less than 25), moderate anxiety (25 - less than 31.5) and severe anxiety (31.5 - 42).

Validity and Reliability:

- Content validity was ascertained by a group of experts: (5) Medical Surgical Nursing department and 2 Assistant professors in the field of Urology department, Faculty of Medicine Ain Shams University. Their opinions were elicited regarding to the tools format layout, consistency and scoring system. Contents of the tools were tested regarding to the knowledge accuracy, relevance and competence.
- Testing reliability of patients needs items was done using alpha cronbach test: Physical needs = 0.877, social needs = 0.745, psychological needs = 0.755, spiritual needs = 0.842 and educational needs = 0.889.
- Testing reliability of numerical pain scale using alpha cronbach test = 0.81 and Hamilton's anxiety rating scale = 0.83.

Ethical considerations:

In the planning stage, approval was obtained from directors of the above mentioned setting. All patients were informed about the study and their rights

according to medical research ethics that they were free to decide whether or not they would participate in the study. Then a written informed consent was obtained from each patient who agreed to participate in the study.

Pilot study:

A pilot trial was carried out on 10% of the total study sample to test the clarity and practicability of the tools, in addition to subjects and settings. Pilot subjects were later included in the study as there were no radical modifications in the study tools.

Procedure:

- Sampling was started and completed within six months from beginning of February 2016 to the end of August 2016.
- The study purpose was simply explained to the patients who agreed to participate in the study prior to any data collection.
- The researcher started to collect the data from the studied patients on the day before the surgical technique (preprocedure assessment) and then later on the follow up visits within one month after the procedure (postprocedure assessment) using the pre constructed tools.
- Data were collected by the researcher 3 days weekly during morning and afternoon shifts. Added to periods of follow – up visit.
- Filling in the tools was done according to the patients' understanding and health condition
- The instructional guidelines were designed based on analysis of the actual patients' needs in pretest.

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- The content was written in simple Arabic language and consistent with the related literature, as well as met patients' needs and their level of understanding.
- The guidelines were presented in theoretical and practical parts.
- The theoretical part was covered the following items: signs and symptoms of infection, hygiene, medications, follow up visits, return to work, sexual condition, traveling preparations, diet regimen, religious practices, physical activities, complications and unusual signs of immediate doctor advice.
- The practical part was covered the following items (hygienic measures, ambulation, fluids and exercises).

Administrative design:

An official letter was issued from the Faculty of Nursing to Director of El-Demerdash Hospital, affiliated to Ain Shams University in which the study was conducted to obtain the approval and assistance in conducting the study.

Statistical Design:

The data collected were organized, sorted, tabulated and analyzed using Statistical Package for Social Sciences (SPSS). They were presented in tables and charts using numbers, percentages, means, standard deviations, T – test and R test. Level of significance was threshold at 0.05.

Results:

Table (1): Shows that the mean age of studied sample was 39.5 ± 5.7 . More than half of them was married, working, males and from urban areas (55.6, 55.6, 62.2 & 58.9 respectively). In relation to education

and income, 34.4% of them had secondary school and 24.4% didn't have enough income.

Table (2): Shows a statistical significant difference between studied patients' physical needs as regards pre / post ureteroscopic lithotripsy (UI) procedure, whereas significant improvement was indicated post procedure compared to pre (mean = 44.4 & 82.7 respectively).

Table (3): Reveals a statistical significant difference between patients' psychological needs as regards pre / post ureteroscopic lithotripsy, whereas significant improvement was indicated post the procedure compared to pre (mean = 40.0 & 73.1 respectively).

Table (4): Shows that there was a statistical significant difference between patients' social needs as regards pre / post ureteroscopic lithotripsy procedure, whereas significant improvement was indicated post the procedure compared to pre (mean = 39.5 & 65.1 respectively).

Table (5): Clarifies that there was a statistical significant difference between patient's spiritual needs as regards pre / post ureteroscopic lithotripsy procedure, whereas significant improvement was indicated post procedure compared to pre (mean = 37.2 & 71.6 respectively).

Table (6): Reveals a statistical significant difference between studied patients' educational needs as regards pre / post ureteroscopic lithotripsy procedure, whereas significant improvement was indicated post procedure compared to pre (mean = 42.8 & 84.6 respectively).

Table (7): Shows studied patients' pain and anxiety levels pre/post procedure. Concerning pain level, significant improvement was indicated post procedure compared by pre (Mean = 44.1 ± 24.0 & 18.5 ± 9.1 respectively). As regards anxiety level,

significant improvement was indicated post procedure compared by pre (45.0 ± 14.1 & 13.0 ± 2.8 respectively).

Table (1): Characteristics of the studied patients (n= 90)

Items	No	%
Age (years)	39.5±5.7	
Mean ± SD		
BMI	46	51.1
Under weight (<18.5kg)	19	21.1
Normal weight (18.5 – 25 kg)	25	27.8
Over weight (>25)		
Gender	56	62.2
Male	34	37.8
Female		
Education	40	54.4
Illiterate/ read & write	31	34.4
Secondary	19	21.1
High		
Maritalstatus	40	44.4
Single	50	55.6
Married		
Job		
Not working	40	44.4
Working	50	55.6
Income		
Not enough	22	24.4
Enough	68	75.6
Residence		
Urban	53	58.9
Rural	37	41.1

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Table(2): Presentation of studied patients as regards their physical needs pre / post ureteroscopic lithotripsy procedure(n=90)

Needs	Studiedpatients		Chi-square test
	Pre no (%)	Post no (%)	X ²
Resume Physical activities	85(94.4)	38(42.2)	56.714*
Follow prescribed diet	74(82.2)	42(46.7)	24.828*
Perform exercises	68(75.6)	37(41.1)	21.966*
Maintain Hygienic measures	70(77.8)	46(51.1)	13.966*
Sufficient sleeping hours	75(83.3)	37(41.1)	34.128*
Relive Fatigue	87(96.7)	67(74.4)	17.982*
Mean % ± SD	82.7±7.3	44.4±4.3	

Table(3): Presentation of studied patients as regards their psychological needs pre / posture teroscopic lithotripsy (n=90).

Needs	Studiedpatients		Chi-square test
	Pre no (%)	Post no (%)	X ²
Reduce anxiety	60 (66.7)	31 (34.4)	18.691*
Sense of safety and security	72 (80.0)	36 (40.0)	30.000*
Coping with health conditions	59 (65.6)	41 (45.6)	7.290*
Fear of complication	68 (75.6)	36 (40.0)	23.320*
Surgery not affect on body image	70 (77.8)	36 (40.0)	26.527*
Fear of loneliness	54 (60.0)	32 (35.6)	10.777*
Mean %± SD	73.1±6.6	40.0±3.9	

Table (4): Presentation of the studied patients social needs pre / post ureteroscopic lithotripsy (n=90).

Needs	Studiedpatients		Chi-square test
	Pre no (%)	Post no (%)	X ²
Increasesocial support/ relations	68(75.6)	45(50.0)	12.577*
Increase recreational activities	54(60.0)	31(34.4)	11.792*
Sexual activity changes	63(70.0)	49(54.4)	4.632*
Work adjustment	59(65.6)	22(24.4)	30.730*
Assistance with traveling and transferring	49(54.4)	31(34.4)	7.290*
Relievefinancialburden	59(65.6)	41(45.6)	7.290*
Mean% ± SD	65.1±8.3	39.5±12.4	

Table (5): Presentation of studied patients as regards their spiritual needs pre / post ureteroscopic lithotripsy (n=90)

Needs	Studied patients		Chi-square test
	Pre no (%)	Post no (%)	X ²
Feeling of usefulness	72(80.0)	44(48.9)	19.009*
Increase satisfaction	69(76.7)	32(35.6)	30.884*
Improving spiritual practices	54(60.0)	27(30.0)	16.364*
Positive vision for the future	63(70.0)	31(34.4)	22.801*
Sense of inner peace	68(75.6)	36(40.0)	23.320*
Mean ± SD	71.6 ±8.8	37.2 ±8.1	

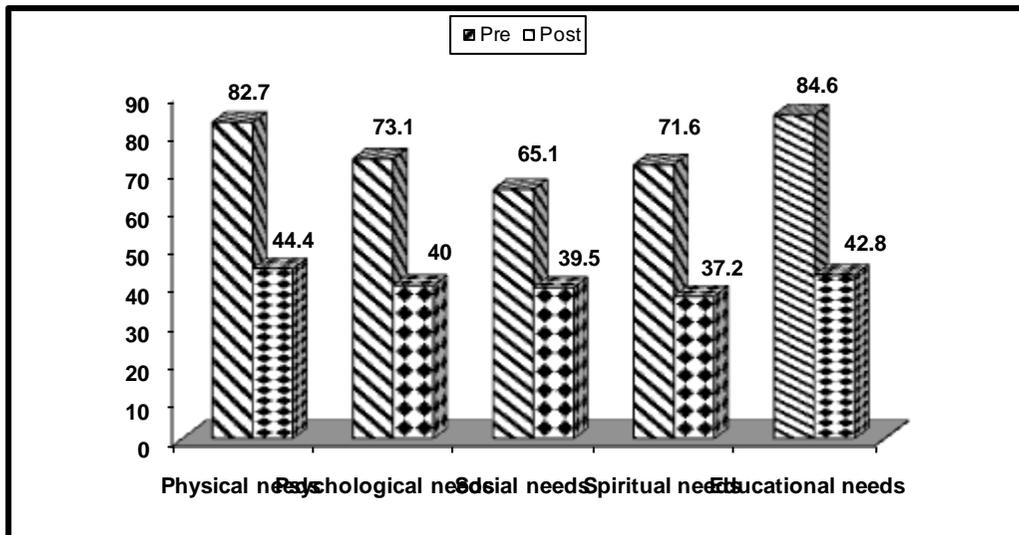
Table (6): Presentation of studied patients as regards their educational needs pre / post ureteroscopic lithotripsy (n=90)

Needs	Studied patients		Chi-square test
	Pre no (%)	Post no (%)	X ²
• Definition / Causes of ureter stones	76(84.4)	35(38.9)	39.506*
• Signs & symptoms of ureter stones	81(90.0)	51(46.4)	42.384*
• Treatment of ureter stones	85(94.4)	40(44.4)	53.018*
• Advantages of ureteroscopic lithotripsy	81(90.0)	27(30.0)	67.500*
Health information about			
• Complications	76(84.4)	54(60.0)	13.403*
• Diet	85(94.4)	62(56.0)	30.353*
• Laboratory tests	72(80.0)	35(38.9)	31.548*
• Self-care and hygiene	72(80.0)	40(44.4)	24.202*
• Infection control	67(74.4)	27(30.0)	35.626*
Discharge instructions			
• Fluid Intake	67(74.4)	31(34.4)	29.029*
• Signs and symptoms of infection	72(80.0)	35(38.9)	31.548*
• Follow up	76(84.4)	40(44.4)	31.422*
• Drugs	81(90.0)	45(50.0)	34.286*
• Lifestyle changes	85(94.4)	58(64.4)	24.801*
Mean %± SD	84.6±6.8	42.8±9.1	

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Table(7): Presentation of pain and anxiety levels among the studied patients pre/post procedure (n=90)

Pain Level	Patients	
	Pre	Post
	%	%
Mild	15.0	29.0
Moderate	23.0	59.0
Sever	62.0	12.0
$\bar{X} \% \pm SD$	18.5 ± 9.1	44.1 ± 24.0
Anxiety Level		
Mild	13.0	37.0
Moderate	16.0	52.0
Sever	71.0	11.0
$\bar{X} \% \pm SD$	13.0 ± 2.8	45.0 ± 14.1



Health needs among studied patients pre / post ureteroscopic lithotripsy

Discussion

Over recent decades, the treatment of patients with ureter stones and ureteroscopic lithotripsy has been established as a safe and effective alternative to shock wave lithotripsy. An important change was needed regarding patient care plans, so patients' assessment provides the foundation to determine the plan of care. Comprehensive

assessment involves a combination of subjective and objective observations and measurements to identify the physiological, psychological, social and spiritual needs of the patients (Hinkle & Cheever, 2014 and De Sioet al., 2012). The current study aimed to develop instructional guidelines for patients undergoing ureteroscopic lithotripsy.

In the present study as regards patients' characteristics, more than half of the study

sample was males. This result comes in agreement with **Clarke et al. (2011)** who found that, male patients were most of the study subjects. In the same context, concerning education and marital status, nearly one third of the studied patients had secondary school and more than half of them were married. **Oyetunde & Famakinwa (2014)** noticed that, nearly one fourth of the study patients had high school level of education. In addition, more than two thirds of the study patients were married.

In the same line, as regards the job, more than half of studied patients were working. This finding was supported by **Marchovich & Smith (2012)** who found that majority of the study subjects were working.

Concerning patients' physical needs, the study found that most of studied patients had a pre-procedure need of resuming physical activity while the majority had reliving fatigue and following prescribed diet. In post procedure assessment, reliving fatigue still the major physical need and more than half of them expressed that they need to resume activity. **Maville & Huerta, (2012)** recognized that more than half of studied patients on the first day post procedure were expressed fatigue, pain, tiredness, nausea and vomiting and questions about groin care. **Kim et al. (2012)** stated that moderate stabbing pain was described by majority of patients as recurrent flank pain.

As regards patients' psychological needs. On the light of the current study finding, pre the procedure such as: sense of safety and security, fear of complications, relieve anxiety and coping with health condition. Post procedure only less than half of patients still facing fear of complications. These findings were in accordance with **Seklehner et al. (2015)** who stated that, nearly all of study subjects were expressed fear of potential complications pre-procedure and less than half of them after a successful procedure.

Moreover, they showed a wider range of problems such as anxiety before and during the procedure.

In relation to patients' social needs. Pre procedure, findings revealed that majority of them were expressed the need to increase social support and manage sexual activity change. **Oyetunde & Famakinwa (2014)** clarified that, majority of the study subjects were expressed a need of enhancing and continuing their sexual potency which continued to be a major need during recovery and caring of their families came later in more than three quadrants of patients pre-procedure, but a noticeable reduction was confirmed post procedure.

Considering spiritual needs. Pre procedure majority of the studied patients were expressed feeling of usefulness, increasing satisfaction and positive future vision as a need. These findings were supported by **Seklehner (2015)** who recognized that majority of the study subjects had low satisfaction and loss of expectation to the future concerns, while there was a remarkable improvement after a successful interventional procedure.

Regarding educational needs pre the procedure, study showed that the majority of studied patients had medically insufficient knowledge about treatment, prescribed diet, life style changes for ureter stones, did not have knowledge about signs and symptoms, advantages of the procedure or prescribed drugs. Post procedure, life style changes, following prescribed diet and complications were the most persistent educational needs in more than half of studied patients. **Lewis et al. (2014)** and **Ignatavicius & Workman (2013)** stated that, patients required additional information about post procedure expectations, follow up and drug management. Significant number of patients did not have knowledge on post procedure precautions, hospitalization period, infection and discharge instructions, so in facing this

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problem, patients should be provided with better instructions before the procedure.

In the present study, the highly affected patients' needs pre the procedure were physical followed by educational and social then later psychological and spiritual. Meanwhile post procedure physical and educational needs were found in about two thirds of patients. This was supported by **Jawaid et al. (2011)**.

Conclusion:

On light of the current study results, it can be concluded that the studied patients had physical, psychological, social, spiritual and educational needs pre the ureteroscopic lithotripsy procedure. In addition, the highest needs pre the procedure were: physical followed by educational, spiritual, psychological and then later social.

Recommendations:

- An orientation program should be prepared for patients undergoing Ureteroscopic Lithotripsy.
- Patients are in need to a simplified illustrated and comprehensive Arabic booklet including information about Ureteroscopic Lithotripsy procedure.
- Continuous assessment of the needs of the patients undergoing Ureteroscopic Lithotripsy is highly recommended.
- Further research studies are needed to focus on the assessment of the quality of life of such group of patients.

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