Assessment of Postoperative Follow-up for Patients with Recurrent Kidney Stone

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الخلاصة

يعد حصى الكلى واحد من اكثر المشاكل الشائعة والمؤلمة (١). والممرضة بدورها تقيم وتراقب المرضى خلال التشخيص والعلاج وتعلم المرضى كيفية تجنب تكرار الاصابة بالحصى (٢).

أجريت دراسة وصفية من ١٥٠ مريضا مشخصا بحصى الكلية المتكرر والذين يراجعون العيادات الاستشارية لامراض الجهاز البولي في اربع مستشفيات تعليمية، مستشفى الجراحات التخصصية، الكاظمية، اليرموك، الكرامة أقسام تفتيت الحصى للفترة من بداية شباط للعام ٢٠٠٢ الى نهاية مايس ٢٠٠٤. لتقييم متابعة المرضى بعد اجراء عملية رفع حصى الكلية اختيرت عينة غير عمدية (غرضية) متكونة من ١٥٠ مريضا مصابا بحصى الكلية المتكرر والذين أجريت لهم عملية رفع حصى الكلية حدد ثبات وصدق الاداة من خلال الدراسة المرشدة ثم صدق المحتوى وثبات التجانس الداخلي. استخدم تحليل الاحصاء الوصفي (التكرارات، النسبة المئوية، الوسط الحسابي، الانحراف المعياري، الكفاية النسبية، واجراء التحليل الاحصائي الاستنتاجي مربع كاي).

اشارت النتائج الى غالبية العينة المدروسة متابعتهم ضعيفة وغير مرضية بالنسبة لاجراء الفحوصات التشخيصية بفترات زمنية منتظمة، تناول السوائل والدواء.

واستناداً الى نتائج الدراسة أوصت الباحثة:

(١) تخصيص غرفة خاصة للعاملين في العيادات الخارجية الاستشارية للامراض البولية لغرض اللقاء مع المرضى الذين يراجعون هذه العيادات لشرح كل مايتعلق بمتابعتهم بعد العملية الجراحية لاجراء الفحوصات التشخيصية بصورة منتظمة، وتناول السوائل والدواء.

(٢) تزويدهم باستمارة تتضمن كل التعليمات والارشادات حول متابعتهم لحالتهم المرضية.

Abstract

Kidney stones are one of the most common and most painful medical problems known [(1)]. Nurses assess and monitor patients through diagnosis and treatment and teach patients how to avoid recurrence of stones [(2)]. A descriptive study was conducted on 150 patients diagnosed with recurrent kidney stones, who were attending the out patients consultation urology disease clinics at surgical specialties, Al-Kadhimia, Al-Yarmook, and Al-Karama Teaching Hospital and Extracorporeal shock wave lithotripsy (ESWL) departments for the period from the 1st of Feb. 2002 through to the end of May 2004.

The aim of the study is to assess the post-operative follow-up for patients with recurrent kidney stones. None- probability (purposive sample) of 150 patients with recurrent kidney stones The reliability and validity of the instrument were determined through a pilot study. The data were collected through the use of constructed questionnaire and analysis through the application of descriptive statistical analysis procedures which included. (Frequency, percentage, mean score, stander deviation, relative sufficiency) and application of inferential statistical analysis which included the (Chi-square)

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The finding of the study indicated that follow-up of the majority of the study sample was poorly and unsatisfactorily concerning doing regular periodic laboratory and diagnostic tests, fluid intake, and medication intake.

Based on the results of the study the researcher recommend to establishment of discussion room for the nurse in charge in out patient urology disease consultation department to meet those patients who were attending this clinic for follow-up to discuss with them issues concerning follow-up in relation to doing regular periodic laboratory and diagnostic tests, diet, fluid intake, and medication and, providing them with a written bulletin concerning complete information about follow-up of patients post operatively after removal of kidney stone.

Introduction

Kidney stones are one of the most common and most painful medical problems known[(1)]. Kidney stone detected in Egyptian mummies dated to 4800 B.C.[(3)].

Discharge advice is a key feature of preventing recurrence once the predisposing factors have been identified . The relationship between patients and nurse is an invaluable and ideal opportunity in changing dietary habit and in maintaining a urine out put of greater than 2 litres per day[(4)].

In Iraq, our country, the statistics that are obtained from the Ministry of Health showed that the number of patients having kidney stones is as follows[(5)]:

Number of Patients with kidney stone by year

Year	Female	Male	Total
1997	1366	3443	4809
1998	1510	2197	3707
1999	2299	3833	6132
2000	1592	2676	4268
2001	2114	3210	5324

Ministry of Health/Baghdad

Methodology

The study was carried out at four teaching hospitals: surgical specialties, Al-Yarmook, Al-Kadhimia, and Al-Karama Hospital at clinic consultation of urology and ESWL department. The sample of (150) adult patients who were attending clinic consultation of urology and ESWL department, and criteria of the sample is :

1- Adult patients age 18 years and above.
2- Patients with previous history of surgical removal of kidney stone.
3- Diagnosed as a recurrent kidney stone.
4- Free from chronic illness, such as blood disease, lupus erythemotosis, Hypertension, peptic ulcer, and malignancy.

The questionnaire which was developed in this study consists of (34) items divided into four parts.

The first part included (10) items relative to demographical data of the patients that include age, gender, marital status, educational status, occupational status, place of work, place of live, habitation place, duration after surgery and recurrence of kidney stone, and told you to visit the clinic consultation of urology periodically.

The second part of the questionnaire was concerned with follow-up after removal of renal stone surgically and consisted of (10) items concerning with regular visit to urology consultation clinic and periodically, laboratory test and diagnostic investigation.

The third part of the questionnaire included (10) items concerning fluid intake.

The fourth part of the questionnaire included (4) items concerning patients follow-up related to medication intake.

The first 10 items (1-10) those were concerned with follow-up were rated on 3-point type likert scale (never, sometimes, always). These items were rated as 1 for never, 2 for sometimes and 3 for always.

The next ten items (1-10) concerned with fluid intake were rated on scale as (never, sometimes, always) 1 for never, 2 for sometimes, and 3 for always.

The last four items (1-4) concerning medication intake were rated on scale of close-ended responses (No, Yes,); these were scored 1 for No, and 2 for Yes,.

The statistical procedures included (Frequencies and percentage), mean of score, stander deviation according to the mean of score, relative sufficiency according to two or three levels scales of (No, Yes) and (Never, Sometime, Always) which were scored as (1,2) and (1,2,3) for each level respectively, relative sufficiency that the cut off points were (1.5) and (2) with low limits for acceptance were (75 and 66.67)%

- If the reversal responding is negatively indicated at the 2 and 3 levels different from the score grades of its responses: so the relative sufficiencies for the rates under 75% and 66.66% respectively meant existence of the problems and the following intervals represented their different levels:

Score| No and Yes	**Score| Never, Sometime, Always**
Low (1): [51-75]	Low (1): [44.23-66.66]
Moderate (2): [26-50]	Moderate(2): [22.22-44.22]
High (3): [0-25]	High (3): [0-22.22]

Results

Table (1): Distribution of the sample (150) postoperative follow-up for patients with recurrent kidney stones according to the laboratory and diagnostic tests

No.	Items regarding laboratory and diagnostic tests	Never (1)		Sometimes (2)		Always (3)		Ms	Sd	RS
		F	%	F	%	F	%			
1-	Visiting the consultative clinic for the urinary tract disease in regular and correct time	33	22.0	111	74.0	6	4.0	1.82	0.48	61(1)
2-	Laboratory tests									
	2-1 Doing periodical laboratory test to analyze the general urine (G.U.E)	57	38.0	93	62.0	0	0	1.62	0.49	54(1)
	2-2 Doing laboratory test to analyze the (24 hours) urine	147	98.0	3	2.0	0	0	1.02	0.14	34(2)
	2-3 Doing periodical laboratory test to analyze the blood (Biochemistry)	105	70.0	45	30.0	0	0	1.30	0.46	43(2)
3-	Doing the diagnostic tests									
	3-1 (I.V.P) U	72	48.0	72	48.0	6	4.0	1.56	0.57	52(1)
	3-2 K.U.B	3	2.0	117	78.0	30	20.0	2.18	0.43	73
	3-3 Ultra sound	21	14.0	108	72.0	21	14.0	2.00	0.53	67
	3-4 M.R.I	141	94.0	9	6.0	0	0	1.06	0.25	35(2)
	3-5 C.T. scan	126	84.0	24	16.0	0	0	1.16	0.37	39(2)
	3-6 Uretropylograph	150	100	0	0	0	0	1.00	0.00	33(2)

This table presented ten indicators of follow-up patients concerning laboratory and diagnostic tests at 3 level scale as Never, Sometimes, Always.

The results of the study sample indicated that concerning item (1) visiting the consultative clinic for urinary tract disease in regular and correct time (74%) of the sample were rated as Sometimes, (22%) of the patients were rated as, Never, while the only (4%) were rated as Always. This item (1) was affected at low by Relative sufficiency.

Regarding item (2-1) Doing periodical laboratory test to analyze the general urine (G.U.E) the majority of the study sample (62%), were rated as Sometimes, (38%) of the patients were rated as Never, this item (2-1) were affected at low level by (RS).

Regarding item (2-2) Doing periodical laboratory test to analyze the 24 hours urine, most of the subjects (98%) were rated as Never, while about (2%) of the patients were rated as Sometimes. This item (2-2) was affected at Moderate level by (RS).

Relating item (2-3) Doing periodically laboratory test to analyze the blood (Biochemistry) the majority of the sample (70%) were rated as Never, about (30%) of the patients were rated as Sometimes. This item was affected at Moderate by (RS).

Regarding item (3-1) Doing diagnostic test, (I.V.P/U)most of the sample (48%) were rated as Sometimes about (48%) of the patients were rated as Never, while only (4%) of the sample were rated as Always. This item was affected at low level by (RS)

Regarding items (3-4) M.R.I, (13-5) C.T. scan, (3-6) uretropylograph the majority of sample (94), (84%), (100%) of the sample were rated as Never, while about (6%), (16%), were rated as Sometimes respectively. These items (3-4), (13-5), (3-6) are affected at low level by (RS).

Table (2): Distribution of the sample (150) postoperative follow-up for patients with recurrent kidney stone according to the fluid intake

No.	Items regarding follow-up patients according to the fluid intake	Never (1)		Sometimes (2)		Always (3)		Ms	Sd	RS
		F	%	F	%	F	%			
1-	Drinks (3-4) liters of fluid and the best is water	0	0	87	58.0	63	42.0	2.42	0.50	81
2-	Increase fluid during hot weather and in the following case									
	2-1 Sweating	24	16.0	102	68.0	24	16.0	2.00	0.57	67
	2-2 Doing sport exercises	33	22.0	99	66.0	18	12.0	1.90	0.53	63(1)
	2-3 In disease such as diarrhea	51	34.0	84	56.0	15	10.0	1.76	0.62	59(1)
	2-4 Increase in body temperature	30	20.0	102	68.0	18	12.0	1.50	0.56	50(1)
3-	Drink glass of water each hour	36	24.0	102	68.0	12	8.0	1.84	0.54	61(1)
4-	Drinks 2 glasses of water before going to bed	96	64.0	45	30.0	9	6.0	1.42	0.61	47(1)
5-	When you wake up in the midnight for urination, I drinks glass of water when you return to bed again	96	64.0	48	32.0	6	4.0	1.40	0.57	46(1)
6-	Drink one or two cold water glasses at morning when I get up	102	68.0	45	30.0	3	2.0	1.34	0.52	44(2)
7-	Drink water among meals	84	56.0	63	42.0	3	2.0	1.46	0.54	48(1)

This table presented ten indicators follow-up (150) patients with recurrent kidney stone according to fluid intake at 3 level scales as never, sometimes, and always.

Regarding item (2-2) increase fluid intake in case of doing exercises, the majority of the sample (66%) were rated as sometimes (22%) were rated as never, while only (12%) were rated as always. This item was affected at low level by relative sufficiency.

As regards item (2-3) increase fluid intake in diseases such as diarrhea, most of the sample (56%) were rated as sometimes, (34%) were rated as never, while (10%) were rated as always. This item was affected at low level by (RS).

Regarding item (2-4) increase fluid intake in case of increase of body temperature, the high percentage (68%) were rated as sometimes, (20%) were rated as never, while only (12%) were rated as always. This item was affected at low level by (RS).

Concerning item (3) drink glass of water each hour, most of the sample (68%) were rated as sometimes, (24%) were rated as never, while only (8%) were rated as always. This item was affected at low level by (RS).

Regarding item (4) do you drink 2 glasses of water before going to bed, the majority of the sample (64%) were rated as never, about (30%) were rated as sometimes, while only (6%) were rated as always. This was item affected at low level by (RS).

Regarding item (5) when you wake up in the midnight for urination do you drink glass of water when you return to bed again , most of the sample (64%) were rated as never, (32%) were rated as sometimes, while only (4%) were rated as always. This item was affected at low level by (RS).

Concerning item (6) drink one or two cold water glasses at morning when you get up, the majority of the sample (68%) were rated as never, (30%) were rated as sometimes, while only (2%) were rated as always. This item was affected at moderate level by (RS).

Regarding item (7) drink water among meals, the majority of the sample (56%) were rated as never, (42%) were rated as sometimes, while the remaining (2%) were rated as always. This item was affected at low level by (RS).

Table (3): Distribution of the sample (150) postoperative follow-up for patients with recurrent kidney stone according to the medication intake

No.	Items regarding follow-up patients according to the medication intake	No (1)		Yes (2)		Ms	Sd	RS
		F	%	F	%			
1-	Do you know the name of your drugs	72	48	78	52.0	1.52	0.50	76
2-	Take your drugs in regularly	111	74.0	39	26.0	1.26	0.44	63(1)
3-	Take your drugs in correct time, in the right dosage and right way	117	78.0	33	22.0	1.22	0.42	61(1)
4-	Do you know the side effects of your drugs	150	100	0	0	1.00	0.00	50(2)

This table presented four indicators follow-up (150) patients with recurrent kidney stone according to medication intake at 2 level scales as No, and Yes.

Regarding item (2) take your drugs regularly, the majority of sample (74%) were rated as No, while only (26%) were rated as Yes. This item was affected at low level by relative sufficiency.

As regards item (3) take your drugs in correct time in the right dosage and right way , most of the sample (78%) were rated as No, (22%) were rated as Yes. This item was affected at low level by (RS).

Regarding item (4) do you know the side effects of your drugs, all the patients (100%) were rated as No. This item was affected at moderate level by (RS).

Table (4): Relationship between the gender of the sample and the follow-up (150) patients with recurrent kidney stone according to laboratory and diagnostic tests

Gender	Female	Male	Total	X^2	C.S P.value
Follow up 150 patients according to laboratory and diagnostic tests	F	F			
Never (1)	174	681	855	4.526	(.104) NS
Sometimes (2)	120	462	582		
Always (3)	6	57	63		
Total	300	1200	1500		

df = 2

This table revealed that both genders were equally affected at never level

The results indicated that there was no significant relationship between follow-up patients according to laboratory and diagnostic tests and the subjects' gender with df = 2.

Table (5): Relationship between the duration after surgery and recurrence of kidney stones and the follow-up of (150) patients with recurrent kidney stone according to the fluid intake

Duration after surgical performance	< 2 years	2-4 years	5-7 years	8-10 years	11-13 years	14-16 years	> 20 years	Total
Follow up 150 patients according to fluid intake	F	F	F	F	F	F	F	
Never (1)	159	60	105	63	60	45	60	552
Sometimes (2)	279	105	105	96	75	69	48	777
Always (3)	72	45	-	21	15	6	12	171
Total	510	210	210	180	150	120	120	1500
$X^2 = 80.269$		df = 12			C.S. = (0.000) S			

The table revealed that the patients who were at less than 2 years duration after surgical performance and recurrence of kidney stone were more affected at sometimes level.

Also the table revealed that there was a significant relationship between follow-up patients according to fluid intake and the duration after surgical performance and recurrence of kidney stone, with df = 12.

Table (6): Relationship between the age of the sample and the follow-up (150) patients with recurrent kidney stone according to medication

Age	(1) 18-27	(2) 28-37	(3) 38-47	(4) > 48	Total	X^2	C.S P.value
Follow up 150 patients with recurrent stone according to medication	F	F	F	F			
No (1)	60	75	144	171	450	64.428	(.000) S
Yes (2)	60	33	36	21	150		
Total	120	108	180	192	600		

df = 3

This table presented that within the age group of (48) year and older, most of the sample answered No while the lowest answered Yes and both were affected at No level. Furthermore the results indicated that there was a significant relationship between follow-up patients according to medication and the subjects age group with df = 3.

Discussion

Ten indicators related to follow-up patients concerning laboratory and diagnostic tests at 3 levels scale, never, sometimes, and always (table l) .

Regarding item (2-2) doing periodically test to analyze the (24 hours) urine, the results revealed (98%) of patients reported never, while (2%) of patients reported sometimes. patients must do this test to determine the kidney is excreting too much or too little of a compound leading to increased risk formation. 24 hours urine collection is performed to evaluate the volume, calcium, oxalate, uric acid, and sodium. [6,7,8,9]

Regarding item (2-3) doing periodically laboratory test to analyze the blood (Biochemistry) the results revealed that the majority of patients (70%) reported as Never, while the remaining (30%) of patients reported sometimes. patients must do the blood chemistry and parathyroid hormone, to determine if the kidney excretes too much or too little.[7,9,10]

This problem may be related to the raised cost of doing these tests or the patients neglect it because the doctor did not emphasize the patients to do these tests while doing these tests is one of the important parts of patients follow-up to early detection of changes in blood biochemistry which lead to the formation of kidney stone.

Regarding item (3-4) M.R.I, (3-5) C.T scan, (3-6) uretropylography, the results revealed that (94%), (84%), (100%) of patients reported that as never, (6%), (16%) of patients reported that as sometimes. diagnostic tests which includes, MRI, CT scan, and uretrophylograph. [10,11,12]

The nurse plays an important role in the preparation of patients during this diagnostic test so that she must inform the patients concerning the importance of doing this diagnostic test to detect kidney stone or perhaps the doctor does not write this diagnostic test to the patients because the diagnostic test is expensive.

Ten indicators related to follow-up patients with recurrent kidney stone according to the fluid intake at 3 level scale, never, sometimes, always.(table 2) .

Regarding item (2) increasing fluid during hot weather, (2-1) sweating, (2-3), diarrhea, (2-4) increase in body temperature.

The results revealed that the majority (68%), (66%), (56%), (68%) of patients reported that as sometimes, while (16%), (22%), (24%), (20%) of patients reported that as never, the remaining (24%), (18%), (15%), (18%) of patients reported that as always. patients should increase fluid intake when perspiration increase in such instances of hot weather and physical exercises through out a day.[13]

people affected by stone, drink less water and pass a small urine volume than people who don't get stones.[1]

Regarding item (4) drink 2 glasses of water before going to bed, the result showed that the most (64%) of patients reported that as never, (30%) of patients reported that as sometimes, while only (6%) of patients reported that as always. patients should be encouraged to have 2 glasses of water or fluid before bedtime because urine is normally more concentrated during night.[14]

Concerning item (5) (when you wake up in the midnight for urination do you drink a glass of water when you return to bed again), the result revealed that the majority (64%) of patients reported that as never, (32%) of patients reported that as sometimes while only (4%) of patients reported that as always. patients should be encouraged to drink enough fluid in the evening to provoke nocturia and then drink further fluid before returning to bed. [14,15]

Regarding item (6) (drink one or two cold water glasses at morning when you get up), the results showed that the high percentage (68%) of patients reported that as never. (30%) of patients reported that as sometimes, while only (2%) of patients reported that as always. patients should be encouraged to drink a glass or two when get up in the morning, cold water is often more palatable. [7]

Regarding item (7) drink water among meals, the results revealed that the majority (56%) of patients reported that as never, (42%) of patients reported that as sometimes, while only (2%) of patients reported that as always. patients should drink water among meals. [13]

Finally prospective study showed that lower rate of recurrence (12%) in those with higher intake of water compared to those without (27%) it should be emphasized that patients received no drug therapy nor were submitted to any dietary change so that the unique efficacy of increasing urinary volume could be validated. (16)

Four indicators of follow-up (150) patients concerning medication intake at 2 level scale no, and yes .(table3)

Regarding item (2) taking drugs regularly, the results showed that the majority (74%) of patients answered no, while only (26%) of patients answered yes.patients should be encouraged to take their medication regularly.[17]

Concerning item (3) (take your drugs in correct time in the right dosage and right way), the results revealed that the majority (78%) of patients answered no, while (22%) of patients answered yes. patients should take medication in the correct time[17,18] .

Regarding item (4) do you know the side effects of your drugs, the results showed that all (100%) of patients answered no. patients should know about medication side effect [17,18,19]. This may be related to defect in the role of nurse that does not notify the patients about side effects of drugs. (Researcher)

The result of study showed that there was no significant relationship between follow-up of patients according to laboratory and diagnostic tests and the gender at level of (P<.104). in addition both genders (male and female) were affected equally at never level (table 4).

This finding disagrees with lee etal who reported that of the 4,588 valid respondents, 440 had at least one episode of upper urinary calculus disease[20] .

That there was significant relationship between follow-up patients according to fluid intake and the duration after surgical performance and recurrence of kidney stone at level of (P<.000) especially who were at less than 2 years duration after surgical performance and recurrent kidney stone were more affected at sometimes level (table5).

Result of the study presented that there was significant relationship between follow-up patients according to medication and age group at level of (P<.000) especially the age group of (48) years and older answered their no while the lowest who had answered yes, both of them affected at no level (table 6).

Recommendations

1- Increasing fluid intake, water is the best one 3-4 liters/day or 1 glass of water every each hour and two glasses of water at bedtime, and after voiding and return to sleep again.
2- Taking medication at appropriate times and in right dose, as prescribed by doctors.
3- Establishment of discussion room to the nurse in charge in outpatient urology consultation department to meet those patients, who were attending this clinic for follow-up to discuss the issue concerning follow-up in relation to laboratory and diagnostic test, fluid intake and medication.
4- Providing those patients with a written booklet concerning complete information about follow-up of patients post operatively after the removal of kidney stone.
5- Teaching Health education concerning chronic illness which should be established in the curriculum of secondary school.

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