

Ministry of higher education and scientific research

Erbil polytechnic university Shaqlawa technical college

Department of Nursingmorning Classes

**Urolithiasis (Research)**

Asses general population knowledge regarding urolithiasis in Shaqlawa city

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**QUESTIONNAIRE**

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**Abstract**

Urinary stone is a condition that occurs when these stones leave the kidney pelvis and enter other parts of the urinary collecting system, which includes the bladder, urethra, and bladder. Urethral stones are a chronic disease that affects quality of life. Urolithiasis is a common condition (especially in Shaqlawa) early diagnosis (which result from increase awareness of people about it) is very important to prevent complications as well as prevent it.

We chose 101 participants and we offer a questionnaire which assess knowledge of participants regarding urolithiasis. The average age of participants is 23 so participants mostly they are adults and young. About gender of participation’s number of male is more than female . About marital status of Participants they were mostly single . about the knowledge of participants, the average score for there knowledge about urolithiasis was 53% which is not an acceptable level, so we have to crete a plan to improve it.

**Chapter one**

**1.1. Introduction**:

Renal stones are formed within the kidneys, and this is called nephrolithiasis. Urolithiasis is a condition that occurs when these stones exit the renal pelvis and move into the remainder of the urinary collecting system, which includes the ureters, bladder, and urethra. Many patients with urolithiasis can be managed with expectant management, analgesic, and anti-emetic medications; however, stones that are associated with obstruction, renal failure, and infection require further increasingly. {1}

With a high rate of recurrence, urolithiasis is a chronic disease that impacts quality of life.

Because urolithiasis is common condition (specially in Shaqlawa) and early detection of it is very important to prevent complications and also it is a preventable, so general population’s knowledge about it is very important. Unfortunately there is little studies to assess population awareness about urolithiasis, so we decide to perform this study in order to understand the level of knowledge of general population about this condition in our area.

**1.2. Objective:**

1-To assess population knowledge about Urolithiasis in shaqlawa.

2-To assess socio-demographics data of participants which may affect results.

**Review of literature**

**1.3. What is urolithiasis?**

Urolithiasis is a condition arising from the formation of renal calculi when the urine is supersaturated with salt and minerals such as calcium oxalate, struvite (ammonium magnesium phosphate), uric acid and cystine. 80% of stones contain calcium. These urinary tract stones vary considerably in size from small 'gravel-like' stones to large staghorn calculi. The calculi may stay in the position in which they are formed, or migrate down the urinary tract, producing symptoms along the way. Studies suggest that the initial factor involved in the formation of a urinary tract stone may be the presence of nanobacteria that form a calcium phosphate shell. {2}

**1.4. Signs and Symptoms:**

The hallmark of obstruction in the ureter & renal pelvis is the sudden onset of excruciating, intermittent pain that radiates from the flank to the groin or to the genital area & inner thigh

• Lower urinary tract symptoms associated w/ urolithiasis are:

• Urgency

• Frequency

• Urge incontinence

• Dysuria

• Hematuria (gross or microscopic) {3}

**1.5. Stone types:**

**1.5.1. Calcium Oxalate Stones**

The most common type of kidney stone is a calcium oxalate stone. These result when the urine contains low levels of citrate and high levels of calcium and either oxalate or uric acid. Calcium oxalate stones are linked with foods high in oxalate, which is a naturally occurring substance in plants and animals. These include beets, black tea, chocolate, nuts, potatoes, and spinach.

**1.5.2. Calcium Phosphate Stones**

Calcium phosphate kidney stones are caused by abnormalities in the way the urinary system functions. Your doctor may order a series of blood and urine tests to determine whether any urinary or kidney problems could be causing this type of stone, which often occurs simultaneously with calcium oxalate stones.

**1.5.3. Struvite Stones**

More common in women, struvite stones form as a result of certain types of urinary tract infections. These stones tend to grow quickly and become large, sometimes occupying the entire kidney. Left untreated, they can cause frequent and sometimes severe urinary tract infections and loss of kidney function.

**1.5.4. Uric Acid Stones**

More common in men, uric acid stones tend to occur in people who don’t drink enough water or have a diet high in animal protein. They are also more likely to occur in people who have gout, a family history of this type of kidney stone, or in those who’ve had chemotherapy.

**1.5.5. Cystine Stones**

Cystine stones are caused by a hereditary genetic disorder called cystinuria that can lead to excessive amounts of the amino acid cystine collecting in the urine. This can result in the formation of stones in the kidneys, bladder, and ureters, which transport urine from the kidneys to the bladder.{4}

**1.6. Stone size**

Stone size is usually given in one or two dimensions, and stratified into those measuring up to 5, 5-10, 10-20,

and > 20 mm in largest diameter.

**1.7. Stone location**

Stones can be classified according to anatomical position: upper, middle, or lower calyx; renal pelvis; upper, middle, or distal ureter; and urinary bladder.{5}

**1.8. Cause of Urolithiasis:**

Bladder stones can develop when your bladder doesn't empty completely. This causes urine to become concentrated urine. Concentrated urine can crystallize and form stones.

Some infections can lead to bladder stones. Sometimes an underlying condition that affects the bladder's ability to hold, store or eliminate urine can result in bladder stone formation. Any foreign materials present in the bladder tend to cause bladder stones.

The most common conditions that cause bladder stones include:

Prostate gland enlargement. An enlarged prostate (benign prostatic hyperplasia, or BPH) can cause bladder stones in men. An enlarged prostate can obstruct the flow of urine, preventing the bladder from emptying completely.

Damaged nerves. Normally, nerves carry messages from your brain to your bladder muscles, directing your bladder muscles to tighten or release. If these nerves are damaged — from a stroke, spinal cord injury or other health problem — your bladder may not empty completely. This is known as neurogenic bladder.

Other possible causes of bladder stones include:

Inflammation. Bladder inflammation, sometimes caused by urinary tract infections or radiation therapy to the pelvis, can lead to bladder stones.

Medical devices. Bladder catheters — slender tubes inserted through the urethra to help urine drain from your bladder — may cause bladder stones. So can objects that accidentally migrate to your bladder, such as a contraceptive device or urinary stent. Mineral crystals, which later become stones, tend to form on the surfaces of these devices.

Kidney stones. Stones that form in your kidneys are not the same as bladder stones. They develop in different ways. But small kidney stones may travel down the ureters into your bladder and, if not expelled, can grow into bladder stones. {6}

**1.9. Risk factors:**

Certain risk factors have been identified including :

**1.9.1. low fluid intake**

**1.9.2. urinary tract malformations:**

* horseshoe kidney
* duplex collecting system

**1.9.3. urinary tract infections**

* especially with urease producing bacteria (see below)
* urease hydrolyzes urea to ammonium thus increasing urinary pH

**1.9.4. cystinuria: congenital disorder**

**1.9.5. hypercalciuria: most common metabolic abnormality**

* high sodium intake
* primary hyperparathyroidism
* hypervitaminosis D
* Cushing syndrome
* sarcoidosis
* milk-alkali syndrome

**1.9.6. hyperoxaluria**

* high dietary oxalate (vegetarians)
* low gut absorption of calcium, leading to increased absorption of oxalate
* low dietary intake of calcium
* malabsorption / ileal disease (e.g. Crohn disease) resulting in fats binding calcium

**1.10. Mechanism:**

The pathogenesis of urolithiasis is a complex biochemical process that is not fully understood. The formation of kidney stones is a biological process encompassing physicochemical changes and urine supersaturation. Supersaturation causes solutes to precipitate in urine, leading to nucleation and the formation of crystal concretions. The transformation from liquid to solid is affected by pH and specific concentrations of excess substances. The level of urinary saturation with respect to stone-forming constituents such as calcium, phosphorus, uric acid, oxalate, cystine, and low urine volume is a risk factor for crystallization. The crystallization process thus depends on the thermodynamics and kinetics of a supersaturated solution. Lithiasis can be prevented by avoidance of supersaturation. Most of the time, urolithiasis depends on the amount of imbalance between urinary inhibitors and promoters of crystallization.2,5. {8}

**1.11. Diagnosis:**

**1.11.1. Blood testing**

Blood tests may reveal too much calcium or uric acid in your blood. Blood test results help monitor the health of your kidneys and may lead your doctor to check for other medical conditions.

**1.11.2. Urine testing**

The 24-hour urine collection test may show that you're excreting too many stone-forming minerals or too few stone-preventing substances. For this test, your doctor may request that you perform two urine collections over two consecutive days.

**1.11.3. Imaging**

Imaging tests may show kidney stones in your urinary tract. High-speed or dual energy computerized tomography (CT) may reveal even tiny stones. Simple abdominal X-rays are used less frequently because this kind of imaging test can miss small Urolithiasis ,Ultrasound, a noninvasive test that is quick and easy to perform, is another imaging option to diagnose Urolithiasis.

**1.11.4. Analysis of passed stones**

You may be asked to urinate through a strainer to catch stones that you pass. Lab analysis will reveal the makeup of your kidney stones. Your doctor uses this information to determine what's causing your kidney stones and to form a plan to prevent more Urolithiasis. {9}

**1.12. Prevention**

Prevention of kidney stones may include a combination of lifestyle changes and medications.

**1.12.1. Lifestyle changes**

You may reduce your risk of kidney stones if you:

* **Drink water throughout the day.** For people with a history of kidney stones, doctors usually recommend drinking enough fluids to pass about 2.1 quarts (2 liters) of urine a day. Your doctor may ask that you measure your urine output to make sure that you're drinking enough water.

If you live in a hot, dry climate or you exercise frequently, you may need to drink even more water to produce enough urine. If your urine is light and clear, you're likely drinking enough water.

* **Eat fewer oxalate-rich foods.** If you tend to form calcium oxalate stones, your doctor may recommend restricting foods rich in oxalates. These include rhubarb, beets, okra, spinach, Swiss chard, sweet potatoes, nuts, tea, chocolate, black pepper and soy products.
* **Choose a diet low in salt and animal protein.** Reduce the amount of salt you eat and choose nonanimal protein sources, such as legumes. Consider using a salt substitute, such as Mrs. Dash.
* **Continue eating calcium-rich foods, but use caution with calcium supplements.** Calcium in food doesn't have an effect on your risk of kidney stones. Continue eating calcium-rich foods unless your doctor advises otherwise.

Ask your doctor before taking calcium supplements, as these have been linked to increased risk of kidney stones. You may reduce the risk by taking supplements with meals. Diets low in calcium can increase kidney stone formation in some people.

Ask your doctor for a referral to a dietitian who can help you develop an eating plan that reduces your risk of kidney stones.{11}

**1.13. Management**:

The management of urolithiasis will depend on the specific patient case, based on factors such as the presenting symptoms and the size and location of the stones.

Most stones are excreted in the urine on their own and do not require invasive surgical techniques. Keeping hydrated to flush the stones out of the body is recommended initially if the pain is manageable for the patient. Simple analgesic medication such as paracetamol can aid in pain relief.

In an acute situation, analgesic medications such as nonsteroidal anti-inflammatory drugs (NSAIDs) or codeine can be administered to relieve pain. Antiemetic medications and rehydration therapy may also be useful. Medical expulsive therapy can be used to facilitate the passing of the stone. For larger stones that do not pass spontaneously, surgery may be needed to remove the calculi. {10}

**Chapter Two**

**Methodology:**

**2.1. Design of the study:**

A descriptive study was conducted in order to assess knowledge of patient and Relatives of the patient regarding to Urolithiasis.

**2.2. Duration of the study:**

This study performed from (oct /2022 ) to (May/2023).

**2.3. Sample of the study:**

A purposive sample target sample of 101 people, consisting of {52 Males} and {49 Females}, was recruited from Shaqlawa Teaching Hospital to participate in the study.

**2.4. Setting of the study:**

Study was conducted at Shaqlawa teaching hospital.

**2.5. Method and tool of data collection:**

A questionnaire was prepared to assess knowledge of patient and paitent’s relative . Also another special form was prepared to collect biographic data about participants.

**2.6. Ethical considerations:**

The agreement of participants was taken verbally to participate in the study.

**2.7. Statistical analysis:**

collected data was analyzed by Excel program.

**Chapter Three**

|  |  |
| --- | --- |
| Table 1: Age of participate | |
| Minimum age | 15 |
| Maximum age | 63 |
| Average age | 23.53 |

Table 1: Age of participate

This table shows the age distribution of the participants. According to the results we found, the youngest was 15 years old, and the oldest was 63 years old. According to the results Average age was 23 .53 years.

|  |  |  |
| --- | --- | --- |
| Table 2: Gender of participants | | |
|  | frequency | Percentage |
| Number of Male | 52 | %51.99 |
| Number of Female | 49 | %48.01 |
| Total | 101 | %100 |

Table2: Gender of participants

This table shows the gender distribution of the participant. Of the 101 cases, 52 were males which are (%51.99) and 49 were females which is (%48.01). According to the results, males had a slightly higher proportion than females.

|  |  |  |
| --- | --- | --- |
| Table 3: Marital status of participate | | |
|  | frequency | Percentage |
| Quantity | 101 | %100 |
| Married | 21 | %20.01 |
| Single | 80 | %79.99 |

Table3: Marital status of participate**.**

**This table shows the marital distribution of the participants. According to the results we found, only 21 out of 101 people were married which is (%20.01) and 80 were single which is (%79.99).**

|  |  |  |
| --- | --- | --- |
| Table 4 : knowledge of participants regarding urolithiasis | | |
|  | frequency | Percentage |
| Minimum | 3 | 18.75% |
| Maximum | 14 | 87.25% |
| Average | 8.5 | 53.13% |

Table 4: knowledge of participants regarding urolithiasis

This table shows the distribution of participant knowledge. According to the results we found, the lowest level of knowledge was (3) out of 16 which is (18.75%) and the most information they knew was (14) out of 16 which is (87.25%) and the average was (8.5) out of 16 which is (53.13%).

**Chapter Four**

**Discussion:**

The youngest participant had 15 years old and the oldest was 63 years old. We took 101 people of young, middle and older age and found that there were more young people than older people.

Of the 101 subjects, 52 were male and 49 were female. In males, the ratio is (51.99%) and in females (48.51%), so males had a slightly higher ratio than females.

About the marital distribution of the participants, According to the results we found, only 21 out of 101 people were married and 80 were single. Single people are more likely to develop urolithiasis than married people.

According to the results we found the lowest level of knowledge was (18.75%) and maximum was (87.25%) and the average score was (53.13%). They did not have an acceptable knowledge about urolithiasis and if there is little knowledge many people may develop Urolithiasis.

**Chapter Five**

**5.1. Conclusion:**

According to the results we found, the youngest was 15 years old, and the oldest was 63 years old. Average age was 23 years. Of the 101 cases, (%51.99) were males and (%48.01) were females. Only 21 out of 101 people were married which is (%20.01) and 80 were single which is (%79.99). According to the results, males had a slightly higher proportion than females. Only 21 out of 101 people were married and 80 were single. The lowest level of knowledge was (3) out of 15 which is (18.75%) and the most information they knew was (14) out of 16 which is (87.5%) and the average was (8.5) out of 16 which is (53.13).

**5.2. Recommendation:**

According to our research, we found that the people we asked have not an acceptable level of knowledge, so we recommend that the Ministry of Health and health centers and media provide information to citizens.

We recommend that Shaqlawa citizens pay more attention to their health by visiting a urinary tract specialist every 6 months because most of them did not check themselves and did not pay attention to them only when they showed symptoms.

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**Questionnaire**

**Questionnaire**

Thank you for agreeing to participate in this research Please answer these questions.

**Part 1: Personal Information**

**Age:**

**Gender:**

**Location of Data Collection Certificate:**

**Marital status:**

**0ccupation:**

**Part 2: Patient and relative information about Urolithiasis**

1. **There are bladder stones? Yes No**
2. **Genetic disease affects stone formation? Yes No**
3. **Is it good to drink plenty of water to prevent kidney stones? Yes No**
4. **Is it bad to exercise when you have kidney stone or bladder stones? Yes No**
5. **Hematuria is a sign of stones in the Urinary system? Yes No**
6. **The environment does not affect kidney stones? Yes No**
7. **act food cause kidney or bladder stones? Yes No**
8. **Treatment of urinary stones always require surgery? Yes No**
9. **Sedentary life may cause stone formation? Yes No**
10. **Urinary stone may lead to UTI? Yes No**
11. **All the patient with urinary stone have sign and symptoms? Yes No**
12. **kidney stones can damage kidneys? Yes No**
13. **Child could develop kidney stones? Yes No**
14. **Eating foods high in salt and sugar can cause kidney stones? Yes No**
15. **Urinary tract infections increase your risk of kidney stones? Yes No**
16. **Drinking sour juices such as oranges or strawberries is good for the patient with urinary stone? Yes No**

**پوختە**

**بەردی میز حاڵەتێکە کاتێک ڕوودەدات کە ئەم بەردانە لە حەوزی گورچیلە دەردەچن و دەچنە ناو بەشەکانی تری سیستەمی کۆکردنەوەی میز کە بریتین لە میزڵدان و میزڵدان و میزڵدان. بەردی میزڵدان نەخۆشییەکی درێژخایەنە و کاریگەری لەسەر کوالیتی ژیان دەبێت. نەخۆشی بەردی میزەڵدان حاڵەتێکی باو (بەتایبەت لە شەقڵاوە) دەستنیشانکردنی پێشوەختە (کە لە ئەنجامی زیادبوونی هۆشیاری خەڵک سەبارەت بەو نەخۆشییە) زۆر گرنگە بۆ ڕێگریکردن لە ئاڵۆزییەکان هەروەها ڕێگریکردن لێی.**

**ئێمە 101 بەشداربوومان هەڵبژارد و پرسیارنامەیەک پێشکەش دەکەین کە زانیاری بەشداربووان سەبارەت بە نەخۆشی بەردی میزڵدان هەڵدەسەنگێنێت. تێکڕای تەمەنی بەشداربووان ٢٣ ساڵە بۆیە بەشداربووان زۆربەیان گەورە و گەنجن. سەبارەت بە ڕەگەزی بەشداریکردن ژمارەی نێر زیاترە لە مێ. سەبارەت بە باری هاوسەرگیری بەشداربووان زۆربەیان سینگڵ بوون . سەبارەت بە زانیاری بەشداربووان، تێکڕای نمرەکان بۆ زانیاری لەوێ سەبارەت بە بەردی میزڵدان 53% بوو کە ئاستێکی قبوڵکراو نییە، بۆیە دەبێت پلانێک بۆ باشترکردنی دابڕێژین**



**وەزارەتی خوێندنی باڵا و توێژینەوەی زانستی**

**زانکۆی پۆلیتەکنیکی هەولێر کۆلێژی تەکنیکی شەقڵاوە**

**بەشی پەرستاری پۆلەکانی بەیانیان**

**بەردی میزڵدان (توێژینەوە)**

**زانیاری گشتی دانیشتووان سەبارەت بە بەردی میزڵدان لە شاری شەقڵاوە هەڵدەسەنگێنێت**

**سەرپەشتیکراوە لەلایەن:**

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