Available online www.jocpr.com

Journal of Chemical and Pharmaceutical Research, 2016, 8(11):119-122

Research Article

ISSN : 0975-7384
CODEN(USA) : JCPRC5

Effect of Ramadan Fasting on Kidney Stone

Zuhier H Hussein[1] and BA Almayahi[2*]

[1]Medical Alsader City, Extracorporeal Shock Wave Lithotripsy (ESWL) for Kidney Stones Unit, Najaf, Iraq
[2]Department of Environment, Faculty of Science, University of Kufa, Najaf, Iraq

ABSTRACT

Background: This study focused on evaluates the effect of fasting on ureteric stone passage.
Methods: Two groups of patients with the ureteric stone of 5 mm to 9 mm in Extracorporeal Shock Wave Lithotripsy (ESWL) in Kidney Stones Unit in medical Alsader city are compared. Each group has 100 patients fasting and non-fasting.
Results: The results are found that the stones are passing lower ureter for the fasting group (43%) more than non-fasting groups (21%).
Conclusion: The stone passage down the ureter is more in fasting patient than non-fasting. However, as full of the ureter with fluid, the movement will be more difficult than if it was empty that meaning interior walls do not shrink because of an obstruction of the liquid inside the ureter.

Keywords: Ureteric stone; ESWL; Kidney stones; Ramadan month

INTRODUCTION

In the case of saturation of urine with different chemical substances may crystallize and increase the risk of renal stone formation. The kidney is working to excrete waste from the body to the outside through the urine. Renal stones are in different sizes, small stone either pass down spontaneously or pass to the ureter causing severe pain, while larger stones stay within the kidney. The carrier tube for urine between the kidney and bladder namely ureter, which is the subject of this research: Ureters (left and right) are an extension of the renal pelvis, and each one divided into three parts: Upper, middle, and lower. The ureter is a long tube with a length and diameter of about 30 cm and of 3 mm to 5 mm, respectively. Three physiological parts, narrowing the ureter, first at Pelvic-Ureteric Junction (PUJ), the second at the ureter cross the iliac vessels, and third at the Uretero-Vesical Junction (UVJ). Ureter provides nerves of renal nerve, sperm, and hypogastric plexus. The ureter in the case of a permanent and continuous movement in the spiral form in order to facilitate the passage of urine to the bladder. The ureter composed of three layers [1,2]:

- The outer layer is serious.
- A middle-class is muscle contains three types of fiber: linear, circular, and retina.
- The inner layer of the mucosa.

Renal stones occur more in male in the young or middle age, there are different theories and opinions on the reasons for stone formation:

1. Some people are more susceptible to the formation of renal stones than others and genetics play a role. Most renal stones are composed of calcium, and an increase of calcium in the urine is a risk factor. These high levels of calcium in the urine may transmit from generation to others. Some genetic disease increases the risk for formation of renal stones. They are examples include distal renal tubular acidosis disease and

people with problems in metabolize a variety of chemicals, such as cysteine (an amino acid), and oxalate (a type of salt), and uric acid (as in gout) [3].

2. Some people more exposed to kidney stones, and this happens in the tropics, where residents are exposed to hot areas and dryness and the urine become more concentrated to form the nucleus for the stone. The high temperature in the Iraq country has a significant impact on the increase in a number of people with renal stone, which is more than 25% of the population [4].
3. It may be the cause of the problem if a person has a ready to stone formation, Synthetic calcium-rich food may increase the risk of developing kidney stones, while if the person does not have ready to form stones, diet will not increase the risk [5].
4. The people who use diuretics or consume many antacids containing calcium could increase the amount of calcium in the urine and increase the risk of stone formation, while patients with HIV who treated with indinavir can form a stone. Small stones may not cause symptoms at all, large stones are usually very painful because they pay the ureter to significantly cramping.

The symptoms are as follows:
Pain is concentrated on one side or the side of the middle of the back and spread to the thigh, sometimes the pain to the genitals, also the patient may have frequent and painful urination, as well as the presence of blood in urine, and lead to nausea and vomiting.

If the stone not pass spontaneously or using drugs that contribute significantly to dissolved it, will use more sophisticated ways to get rid of them but it is not free from side effects, and each method has disadvantages but ranging risk, which can be used with appropriate instruments and experienced staff. Using an Ultrasound Shock Wave Lithotripsy outside the body, which is called "ESWL": Performed in hospital outpatient centers or in Lithotripsy Center, this procedure takes forty to fifty minutes and without anesthesia, if the patient's age more than 15 years, while in children is done with general anesthesia? Where the patient is placed on a special table, sent to him-energy shock waves through high water bag placed on the skin near the scene of a pebble. The sound waves are shocked, when its focus on pebble Lithotripter into small pieces. Where it works sound waves to form a bubble inside the pores in the stone depending on the moisture content in them and repeating waves voice spoke explosions successive bubbles lead to the weakening of association linking components pebble with each other and thus lead to fragmentation and downing from the ureter with urine. If the stone impacted in one ureter or in the bladder, may use ureter scope or cystoscopy under local or general anesthesia, and exploratory tube narrow has entered the urethra and routed to the bladder or higher toward the ureter. A special tool can enter through a telescope, which grasps the stone or broken it. As well as the electrical energy can be used, which in turn generate laser energy for lithotripsy?. Percutaneous nephrolithotomy method is used to treat stones larger than 20 mm. They need general anesthesia, where the exploratory tube is inserted through a small incision in the patient's side and stone fragmented by ultrasound waves, or by using lasers. In the case of large stones or inaccessible by the normal method will use surgery and is considered as a last resolve to treat the stone. This method is used only in unusual cases, which cannot treat it. The use of surgery accompanied in some cases with complications that may be unpredicted, including bleeding during the operation or inflammation after operation as a result of contamination of surgical instruments or operating room, or as a result of the negligence of patient care after the operation [6-10]. While the patient is under general anesthesia, the surgeon makes a surgical incision in the side patient ureter or kidney (depending on where the stone) to access the stone and removed it, then the incision are sutured and keep the patient several days later decided by a doctor before discharge from the hospital**.** The aim of the study has evaluated the effect of fasting in Ramadan month on the descent of ureteric stones.

PATIENTS AND METHOD

This study included 100 patients with renal and upper ureteric stones are treated in the ESWL Unit in Medical Alsadr City, Najaf, in the period from July to August 2012. This period concurrent with the month of Ramadan. By taking medical information about the patients, all of them fast.

RESULTS

These 100 cases in 14 days after ESWL treatment are evaluated and found that 43 cases the stone pass down to lower ureter or outside the body. Results compared with another group of patient (100 cases) in another month (non-fasting) and these cases are evaluated of 14 days after ESWL treatment and found only 21 of them the stones pass

down to the lower ureter. The other cases, stone remains in the kidney or upper ureter without descending to the lower ureter or outside the body. The great difference between the two groups is noted, where the difference is more than two times. In the first group, which is after the month of Ramadan, the number became near to 43%. In the second group, the number is less than a quarter of 21%. Figure 1 shows the difference of ureteric stone passage in fasting and non-Fasting patients.

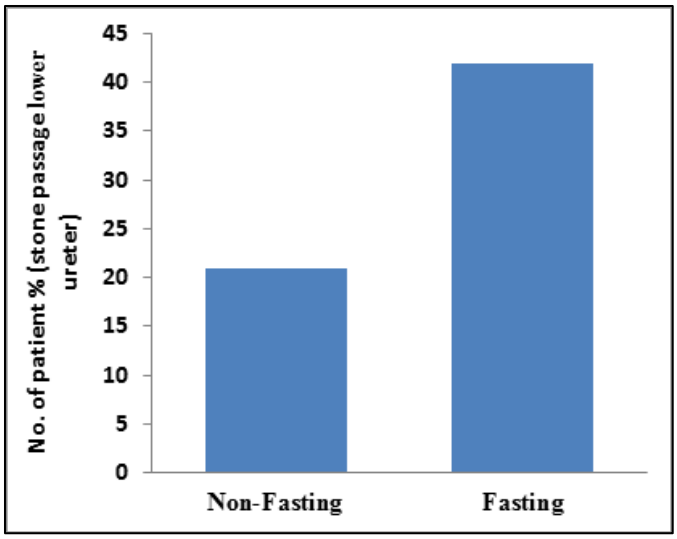

Figure 1: Difference of ureteric stone passage in fasting and non-Fasting patients

DISCUSSION

The doctors recommend their patients to exercise and avoiding of fasting, which causes dehydration and drinking a lot of liquid after completed the session of ESWL, which in turn helps to push crystals and small stone down to the bottom of the bladder through the ureters and then to outside the body through the urine [11-13]. Forty-three cases the stone pass down to lower ureter or outside the body. Only 21 the stones pass down to the lower ureter. The other cases, stone remains in the kidney or upper ureter without descending to the lower ureter or outside the body. The great difference between the two groups is noted, where the difference is more than two times. Passing stone down the ureter is more in fasting patients than non-fasting. This may be to increased bioactivity and filtration of the ureter in fasting patients. However, as full of the ureter with fluid, the movement will be more difficult than if it was empty meaning interior walls do not shrink because of an obstruction of the liquid inside the ureter.

CONCLUSION

Passing stone down the ureter is more in fasting patients than non-fasting. This may be to increased bioactivity and filtration of the ureter in fasting patients. Working fasting on the survival of the ureter is empty of fluid, and this helps the ureter to move easily and do its job better than if it was filled with fluid. Where the ureter movement is shrinking and energizes be similar to a bowel movement, but in the case of the ureter, the situation is somewhat different as the inner walls shrink and unfold helping to push pebbles down into the ureter. However, as full of the ureter with fluid, the movement will be more difficult than if it was empty meaning interior walls do not shrink because of obstruction of the liquid inside the ureter. Then pushes the stone only by the pressure generated by the accumulated liquid column behind the stone inside the ureter and in this case, the ureter does not work as what is required of it, which is less efficient.

ACKNOWLEDGMENT

The authors acknowledge the financial support of Alsader hospital. The authors thank all the doctors who participated in the sampling.

REFERENCES

1. Papa L, Stiell I G, Wells. G A, Ballwin, Battram, E, Mahoney, J E. Predicting intervention in renal colic patients after emergency department evaluation. *Can J Emerge Med.*, **2005**; 7:78, 86.
2. Singh A, Alter H J, Littlepage, A. A systematic review of medical therapy to facilitate passage of ureteral calculi. *Ann Emerge Med.***2007**; 50:552, 563.
3. Pearle M S, Calhoun E A, Curhan G C. Urologic Diseases of America Project: urolithiasis. *J Urol.*, **2005**; 173: 848, 857.
4. Urology Care Foundation, **2013**.
5. Stamatelou. K K, Francis. M E, Jones, C A, Nyberg, L M. Curhan G C. Time trends in reported prevalence of kidney stones in the United States: 1976-1994. *Kidney International*. **2003**; 63: 1817, 1823.
6. Teichman. J M. Clinical practice. Acute renal colic from ureteral calculus. *N Engle J Med*. **2004**; 350: 684, 693.
7. American Urological Association Education and Research, Inc., and European Association of Urology, **2007**.
8. Granz B., Laski, Ranke M., Mahler M., Rohwedder A., Chau's C. Turn off Lithostar modular is – A proven system, **2003**, 4 5 -56.
9. Choi M J, Coleman A J, Saunders J E. The influence of fluid properties and pulse amplitude on bubble dynamics in the field of a shock wave lithotripter; Boil, **1994**, 44: 1561 .
10. American Urological Association. Clinical Guidelines: Ureteral Calculi. Last updated **2007**. Available at: Accessed February 11, 2008.
11. John Denstedt, Saad Khoury. Stone Disease. 2nd International Consultation on Stone Disease, September 5, 2007, Edition 2008. 76, rue de la Pompe - 75016 Paris – France.
12. Goldfarb, D.S., F.L. Coe, J.R. Asplin. Urinary cysteine excretion and capacity in patients with cystinuria. Kidney Int, **2006**. 69 (6): 1041-7.
13. Kachel TA, Vijan SR, Dretler SP. Endourological experience with cystine calculi and a treatment algorithm. J Urol **1991**, 145: 25,