FREQUENCY OF SPONTANEOUS STONE EXPULSION OF SMALL LOWER URETERIC STONES IN PATIENTS WITH RAISED SERUM CRP(C-REACTIVE PROTEIN)

Noor Shad Khan[1], Muhammad Izhar[2], Tausif Ahmad[1], Anwar Hayat[2], Tariq Saleem Khan[2], Tauheed Farid[2], Shehzad ur Rehman[3]

[1]DHQ Hospital Timergara.

[2]Institute of Kidney Diseases, Peshawar.

[3]Lady Reading Hospital Peshawar.

ABSTRACT

Objective: *To determine the frequency of spontaneous stone expulsion of small lower ureteric stones in patients with raised serum CRP***.**

Materials and Methods: *Total of 195 patients with lower ureteric stone size 4mm to 9mm and with raised CRP were analyzed. All patients were subjected to history taking and examination for suspected ureteric stone. Urine R/E, blood investigation, was carried out followed by x-ray KUB and ultrasound of the pelvis and abdomen. CRP was measured only on initial presentation.*

Results: *In our study Spontaneous stone expulsion was recorded in 54.87 % patients while the remaining 45.12% failed to spontaneous stone expulsion. We grouped spontaneous stone expulsion on the basis of age and found 26.56% out of 43.07% of patients were fall in spontaneous stone expulsion criteria in the group of 46-60 Years. Stratification of spontaneous stone expulsion with CRP level was done and that was noted that 54.87% has raised CRP value.*

Conclusion: *The intended concluded that this conservative management with medical expulsive therapy is a successful strategy for managing small ureteric stones in distal ureter and it could be best seen with plasma CRP. Those Patients having raised CRP level have comparatively low stone expulsion rate and therefore should immediately be considered for minimally invasive procedure such as ureteroscopy.*

Key words: *renal colic, ureteric calculi, obstructive uropathy, Medical expulsive treatment , DJ stent, urological emergency.*

INTRODUCTION

Globally, urinary tract stones are the most common urological problems and represent prevalence rate of about 4-15%[1]. In Asia the prevalence of Urinary stone is about 1%-5%[2]. It was estimated that approximately 12 percent of people has urinary stones in a population[3]. In the past two decades the open surgery for the removal of distal ureterolithiasis is replaced by invasive procedure such as extracorporeal shock wave lithotripsy and ureteroscopy. Both these procedures are expensive but have good results in health community[4]. A number of studies stated that individuals with ureteral stone do not need interference, due to spontaneous stone expulsion rates of up to 98 percent for stone size 4 mm or smaller [5, 6]. Spontaneous ureteral stone expulsion depends on the stone size measurement[7]. Smaller stone up to size measurement of 5mm are easily faced with spontaneous expulsion, while larger size stones have less chance of spontaneous expulsion. In literature it was stated that about 71–98 % of spontaneous expulsion occur of distal ureteric stones size measurement of 5 mm and for stone >5 mm the incidence of spontaneous expulsion is about 25–51 % [5, 8]. Serum CRP level, nonspecific marker, raised in the presence of

Correspondence:
Muhammad Izhar
Institute of Kidney Diseases, Peshawar, Pakistan
Email: izhar.kmc888@gmail.com
Cell No:0343-1270703

injury or inflammation. In our study we are trying to investigate the relationship among serum CRP and the possibility of spontaneous stone passage . Raised CRP level is not specific. In number of infectious disorder such as renal injury, urinary tract infection in children, the serum CRP level increased.

MATERIALS AND METHODS

This is a Descriptive Cross Sectional study which was conducted at Department of Urology, Hayatabad Medical Complex, Peshawar. The study was completed in 6 months from September 2016 to February 2017. According to inclusion criteria totally 195 patients were enrolled in our study after signing informed consent, voluntarily. Non- probability Consecutive sampling were followed. Those patients with urinary tract infection, multiple ureteric calculi, Pregnancy, Solitary kidney, associated ureteral anomaly, impaired renal functions, previous ureteric surgery or endoscopic procedure were excluded from the study. Patient suffering from any inflammatory condition, active neoplasia, diabetes, obesity, hepatic failure and also those patients who uses drug such as steroids and oral contraceptives were excluded from the study. All patients were subjected to history taking and examination for suspected ureteric stone. Urine R/E, blood investigation, including serum urea and creatinine levels was carried out followed by x-ray KUB and ultrasound of the pelvis and abdomen. CRP was measured only on initial presentation. All investigations was performed in the same laboratory using the same protocol to avoid any conflict.

By using SPSS version 17, statistical analysis of our study was conducted using the mean, standard deviation and Chi-square test. Mean ± S.D was calculated for numeric variables like age, stone size and CRP level. Frequency and percentage was calculated for qualitative variables like gender, stone size and spontaneous expulsion. Stone expulsion was stratified among age, gender and CRP levels and stone size to see effect modifier. Post stratification was applied using chi-square test. P-value ≤ 0.05 was considered significant. All the data was presented in the form of tables.

RESULTS

All of 195 enrolled patients with distal ureteric tone completed the study. Out of total patients, 76.41 % were male and 23.58 % were female. Spontaneous stone expulsion was recorded in 54.87 % patients while the remaining 45.12% failed to spontaneous stone expulsion.

In our study we measure the stone size from 4mm to 9 mm in diameter. The prevalence of 5mm stone was high (29.74%), followed by 8 mm and 4 mm stone (20.51%), (20%) respectively. 6 mm stone was found in 16.41% and 7 mm stone was found in 7.69 % patients. The stone size of 9mm was found in 5.64 % of patients.

We grouped spontaneous stone expulsion on the basis of age and found 26.56% out of 43.07% of patients were fall in spontaneous stone expulsion criteria in the group of 46-60 Years. Followed by age group of 18-30 Years, 31.57% out of 29.23% fall in spontaneous stone expulsion criteria. And least amount 13.33% fall in the age group of 31-45 Years.

Stratification of spontaneous stone expulsion with CRP level was done and that was noted that 54.87% has raised CRP value. Stratification of spontaneous stone expulsion with stone size was also done and noted that 5mm size of stone has 16.92% of spontaneous stone expulsion, followed by 8mm size of stone.

DISCUSSION

Ureteral stones is the common urological emergency in the entire world, of which the incidence rate has been estimated at 15 % of population[9]. A number of techniques such as SWL and ureteroscopy are used now a days that are considered effective as a treatment procedures for ureteric stones. In the recent world the urologist face the problem that to decide and choose on between conventional procedures to measures stone size and interference for the management of ureterolithiasis. Although

Table 1: Frequencies and percentages for spontaneous stone expulsion (n=195).

Spontaneous Expulsion	Frequency	Percentage
Yes	107	54.87%
No	88	45.12%

Table 2: frequencies and percentages for stone size (n=195)

Stone Size	Frequency	Percentage
9mm	11	5.64%
8mm	40	20.51%
7mm	15	7.69%
6mm	32	16.41%
5mm	58	29.74%
4mm	39	20%

Table 3: Stratification of spontaneous stone expulsion with age (n=195).

Age group	spontaneous stone expulsion		P-Value
	yes	no	
18-30 Years	30 (31.57%)	27 (13.84%)	0.323
31-45 Years	26 (13.33%)	28 (14.35%)	
46-60 Years	51 (26.56%)	33 (16.92%)	

Table 4: Stratification of spontaneous stone expulsion with CRP level (n=195).

CRP level	spontaneous stone expulsion		P Value
	YES	NO	
>5 mg/L	107(54.87%)	88 (45.12%)	0.001

observation stops the intrusive techniques for the removal of ureteral stone. These procedures causes discomfort and sometimes loss of work. Serum CRP level, nonspecific marker, raised in the presence of injury or inflammation. In aim of our study is to investigate the relationship between serum CRP level and the possibility of spontaneous stone expulsion in order to make decision regarding intervention versus observation. In this study, the prevalence of male patients is higher than female patients. This finding was comparable with a study done by H. A. Aldaqadossi at Urology Department, Fayuom University, Egypt. Stone size measurement also affect the spontaneous stone expulsion as in our study the stone size of 5 mm has highest rate of spontaneous stone expulsion followed by 4mm size stone. This finding was comparable with the study performed by Joseph W. Segura et al. that stated 98% of stones less than 0.5 cm in diameter will pass spontaneously[8]. In our study all patients had raised levels of serum CRP level. Similarly in a study by park et al on 187 patients, 170 patients with raised CRP had spontaneous stone expulsion[10]. Our study also brought similar results as compare to a study conducted by Aldaqadossi et al where 129 (54.9%) had spontaneous expulsion while our results were also the same as in our study 107 (54.8%) whereas 88 (45.12%) patients underwent intervention for stone clearance.

CONCLUSION

Our study concluded that this conservative management with medical expulsive therapy is a success for management of small distal ureteric stones and it could be best seen with plasma CRP. Those Patients having raised CRP level have comparatively low stone expulsion rate and therefore should immediately be considered for minimally invasive procedure such as ureteroscopy.

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