

Clinical profile of patients suffering from urolithiasis

Roopam Gupta and Madhu Goyal

Urolithiasis is a multi-factorial disease involving genetic and environmental factors. The increased incidence of urolithiasis has been associated with variations in its epidemiology like age, gender, distribution of the disease and also type and location of the calculi. Present study describes clinical profile of patients suffering from urolithiasis and visiting urology department of Prince Bijoy Singh Memorial (PBM) Government Hospital, Bikaner (Rajasthan). Detailed history and physical examination was carried out with a pretested questionnaire, with respect to age, gender and location of the calculus. Out of 172 subjects studied, 55.23 per cent were males and 44.77 per cent were females belonging to the age of 20 to 40 years. In majority of male and female subjects the site of stone formation was kidney (48.26%), followed by ureter (34.30%), bladder (8.14%), multiple site (4.65%), pelvic-ureteric junction (2.91%), vesiculo - ureteric junction (1.16%) and urethra (0.58%). Irrespective of gender and age, 65.70 per cent of the subjects were having single stone and rest (34.30%) had multiple stone formations. Majority of the subjects (29.07%) complained for renal colic, nausea, vomiting and burning on urination. Few subjects (8.72% and 9.30%) also complained for hematuria and fever.

Key Words : Urolithiasis, Pelvic-ureteric junction, Vesiculo - ureteric junction, Incidence, Multiple sites, Single stone, Multiple stone

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INTRODUCTION

Among urinary disorders, stone formation is of paramount importance. The incidences of urinary stones are rising in rural and urban societies in India. A large population of the country suffers from urinary stones which are formed due to deposition of calcium, phosphates and oxalates. The chemicals start accumulating over a nucleus, which ultimately takes the shape of a stone (Misra and Kumar, 2000).

The formation of urinary calculi, usually known as, renal stone or kidney stone or urolithiasis is a serious, debilitating problem in all societies throughout the world. Urinary stones are typically classified by their location in the kidney (nephrolithiasis), ureter (ureterolithiasis) or bladder (cystolithiasis) as stated by Jayaraman and Gurusamy (2018). Clinical profile of the patients suffering from urolithiasis has been associated with variations in its epidemiology like age, gender, distribution of the disease and also type and location of the calculi (Apte *et al.*, 2016). Present study, therefore was undertaken to explore age and gender wise differences in clinical profile of such patients.

METHODOLOGY

The study was a descriptive and observational type, carried out in the Department of Urology at Prince Bijoy Singh Memorial (PBM) Hospital, Bikaner district,

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Rajasthan state of India. Total 172 patients, who presented with sign and symptoms of urolithiasis for diagnosis and treatment in Department of urology, were included in the study. Detailed history and physical examination was done with a pretested questionnaire, with respect to age, gender and location of the calculus.

OBSERVATIONS AND ASSESSMENT

The male to female ratio of the present study was found to be 1.23, since out of 172 subjects suffering from urolithiasis, 95 (55.23%) were males and 77 (44.77%) were females indicating greater incidence of male patients as compared to the females (Table 1). Similar to present findings Taylor and Curhan (2007), also reported high risk of kidney stones among male patients than their female counterpart at Boston (US).

In the present study the age of subjects ranged from 20 years to 40 years, therefore, they were classified as 20-30 years and 31-40 years in order to obtain age wise detailed information about the disease. Out of total male subjects (n=95), 45.26 per cent were in the age group of 20-30 years and rest of them (54.74 %) were in the range of 31-40 years. In case of female subjects (n=77), 49.35 per cent belonged to 20-30 years and 50.65 per cent were

falling in the age group of 31-40 years.

Present finding about greater incidence of urolithiasis in the age group of 30-40 years is in line with that reported by Rao *et al.* (2006) and Pandey *et al.* (2010).

Irrespective of age, maximum number of male (42.11%) and female (57.14%) subjects reported kidney as a site of their stone formation followed by other sites of urinary tract *i.e.* ureter (40.00% and 25.97%), bladder (7.37% and 9.09%), multiple site (6.32% and 2.60%), pelvic-ureteric junction (2.11% and 3.90%), vesiculo - ureteric junction (2.11% and 0.0%) and urethra (0.0% and 1.30%). Ahmed *et al.* (2015) studied on total number of 1236 urinary calculi patients and they also reported greater occurrence of kidney stones (73.3%) as compared to the anatomic location of ureteric calculi (13%), vesiculo - ureteric junction (9.8%), pelvic-ureteric junction (2.3%), bladder calculi (1.1%) and urethral calculi (0.5%).

Table 2 shows that greater number of subjects of both the gender and age groups had reported for the occurrence of single stone (65.70%) as compared to findings about multiple stones (34.30%).

Table 3, describes that presence of renal colic, nausea and vomiting was a common feature of urolithiasis among all the subjects, immaterial of their gender and age. Other symptoms like burning on urination, hematuria and fever

Table 1: Age and gender wise distribution of subjects (n=172)

Age (in years)	Male (n=95)	Female (n=77)	Total
20-30	43 (45.26)	38 (49.35)	81 (47.09)
31-40	52 (54.74)	39 (50.65)	91 (52.91)
Total	95 (100.00)	77 (100.00)	172 (100.00)

Table 2: Age wise distribution of subjects according to their stone description (n=172)

Stone description	Specific characteristics	Male subjects			Female subjects			Grand total
		20-30 yrs (n=43)	31-40 yrs (n=52)	Total (n=95)	20-30 yrs (n=38)	31-40 yrs (n=39)	Total (n=77)	
Site of stone	Kidney	13 (13.68)	27 (28.42)	40 (42.11)	24 (31.17)	20 (25.97)	44 (57.14)	84 (48.84)
	Ureter	23 (24.21)	15 (15.79)	38 (40.00)	9 (11.69)	11 (14.29)	20 (25.97)	58 (33.72)
	PUJ	1 (1.05)	1 (1.05)	2 (2.11)	1 (1.30)	2 (2.60)	3 (3.90)	5 (2.91)
	Bladder	2 (2.11)	5 (5.26)	7 (7.37)	2 (2.60)	5 (6.49)	7 (9.09)	14 (8.14)
	VUJ	-	2 (2.11)	2 (2.11)	-	-	-	2 (1.16)
	Urethra	-	-	-	1 (1.30)	-	1 (1.30)	1 (0.58)
	Multiple site	4 (4.21)	2 (2.11)	6 (6.32)	1 (1.30)	1 (1.30)	2 (2.60)	8 (4.65)
	Total subjects	43 (45.26)	52 (54.74)	95 (100.00)	38 (49.35)	39 (50.65)	77 (100.00)	172 (100.00)
Number of stone	Single	28 (29.47)	35 (36.84)	63 (66.32)	31 (40.26)	19 (24.68)	50 (64.94)	113 (65.70)
	Multiple	15 (15.79)	17 (17.89)	32 (33.68)	7 (9.09)	20 (25.97)	27 (35.06)	59 (34.30)
	Total subjects	43 (45.26)	52 (54.74)	95 (100.00)	38 (49.35)	39 (50.65)	77 (100.00)	172 (100.00)

Table 3: Distribution of subjects according to their signs-symptoms of urolithiasis

Sign and symptoms	Male subjects			Female subjects			Grand total
	20-30yrs	31-40yrs	Total	20-30 yrs	31-40 yrs	Total	
Renal colic, nausea, vomiting	16(9.94)	7(4.35)	23(24.21)	11(7.91)	16(11.51)	27(35.06)	50(29.07)
Renal colic, nausea, vomiting, burning on urination	17(10.56)	38(23.60)	55(57.89)	19(13.67)	10(7.19)	29(37.66)	84(48.84)
Renal colic, nausea, vomiting, burning on urination, haematuria	1(0.62)	-	1 (0.62)	6(4.32)	-	6(7.79)	7(4.07)
Renal colic, nausea, vomiting, fever	7(4.35)	3(1.86)	10(10.53)	2(1.44)	4(2.88)	6(7.79)	16(9.30)
Renal colic, nausea, vomiting, haematuria	2(1.24)	4(2.48)	6(6.32)	-	9(6.47)	9(11.69)	15(8.72)
Grand total	43(26.71)	52(32.30)	95(100.00)	38(27.34)	39(28.06)	77(100.00)	172(100.00)

were also reported by 57.89 per cent and 37.66 per cent, 6.32 per cent and 11.69 per cent and 10.53 per cent and 7.79 per cent for male and female subjects, respectively, along with renal colic, nausea and vomiting.

Conclusion:

While studying clinical profile of patients suffering from urolithiasis, the male to female ratio was found to be 1.23. Greater number of subjects (54.74% and 50.65%) belonged to 31-40 years than that of 20-30 years age category (45.26% and 49.35%). Kidney was reported to be the most common site of stone formation for majority of the subjects (48.84 %) followed by ureter (33.72%), bladder (8.14%), multiple site (4.65%), PUJ (2.91%), VUJ (1.16%) and urethra (0.58%). Frequency of single stone was greater (65.70%) than multiple stone (34.30%). Majority of the subjects (48.84%) reported for renal colic, nausea, vomiting and burning on urination, but 8.72 per cent to 9.30 per cent subjects also complained for hematuria and fever along with common sign and symptoms.

LITERATURE CITED

Ahmed, F., Nada, MO, Farid, A.B., Haleem, M.A. and Razack,

S. (2015). Epidemiology of urolithiasis with emphasis on ultrasound detection: Aretrospective analysis of 5371 cases in Saudi Arabia". *Saudi J. Kidney Disease Transplantation*, **26** : 386-391.

Apte, A., Dahiphale D. and Dahiphale, A.P. (2016). Clinical profile of urolithiasis patients at radiodiagnosis Department of a Tertiary Care Hospital. *IOSR J. Dental & Medicine Sci.*, **15** (9) : 21-23.

Pandey, A., Prajapati, R., Panta, P. and Regmi, A. (2010). Assessment of kidney stone and prevalence of its chemical composition. *Nepal Medical College J.*, **12** (3): 190-192.

Jayaraman, U.C. and Gurusamy A. (2018). Review on urolithiasis pathophysiology and aesculapian discussion. *IOSR J. Pharmacy*, **8**(2) : 30-42.

Misra, A. and Kumar, A. (2000). Studies on ayurvedic drugs for the cure of urinary tract stones. *J. Indian Botanical Society*, **79** : 47-48.

Rao, T.V., Bano, S. and Das, M. (2006). Epidemiology of urolithiasis and chemical composition of urinary stones in Purnia division of Bihar. *Indian J. Community Medicine*, **31** (1) :76-77.

Taylor, E.N. and Curhan, G.C. (2007). Oxalate intake and risk for nephrolithiasis. *J. American Society Nephrology*, **18** : 2198- 2200.

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