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Clinical profile of middle and old aged patients suffering from urolithiasis residing in Bikaner city (Rajasthan)

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Abstract

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 Bijoysingh 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 128 subjects studied, 51.56% were males and 48.44% were females belonging to the age of 41 to 70 years. In majority of male and female subjects the site of stone formation was kidney (55.47%), followed by ureter (32.81%), bladder (6.25%), multiple site (7.03%), pelvic-ureteric junction (3.13%), vesiculo - ureteric junction (4.69%) and urethra (0.78%). Irrespective of gender and age, 57.81 percent of the subjects were having single stone and rest (42.19%) had multiple stone formations. Majority of the subjects (39.06%) complained for renal colic, nausea, vomiting and burning on urination. Few subjects (15.63% & 14.84%) also complained for hematuria and fever.

Keywords: Urolithiasis, pelvic-ureteric junction, vesiculo - ureteric junction, Incidence, multiple sites

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) [5].

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) [4]. 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) [2]. Present study, therefore was undertaken to explore age and gender wise differences in clinical profile of such patients.

Material and Methods

It was a descriptive and observational study, carried out in the Department of Urology at Prince Bijoysingh Memorial (PBM) Hospital, Bikaner district, in Rajasthan state of India. Total 128 patients, visited with sign and symptoms of urolithiasis in Department of urology for diagnosis and treatment, were included purposively in the study. Detailed history and physical examination was done with a pretested questionnaire, considering the age, gender and location of the calculus.

Result and Discussion

Male to female ratio of the present study was found to be 1.06, representing 66 (51.56%) were males and 62 (48.44%) were females since out of 128 subjects suffering from urolithiasis, indicating greater incidence of male patients as compared to the females (Table 1). Quite comparable to the findings of Taylor and Curhan (2007) [7] reported high risk of kidney stones among male patients than their female counterpart at Boston (US)..

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Table 1: Age and gender wise distribution of subjects

| Age (in years) | Male(n=66) | Female(n=62) | Total(n=128) |
|----------------|------------|--------------|--------------|
| 41-50 | 25(37.88) | 25(40.32) | 50(39.06) |
| 51-60 | 22(33.33) | 21(33.87) | 43(33.60) |
| 61-70 | 19(28.79) | 16(25.81) | 35(27.34) |
| Total | 66(100.00) | 62(100.00) | 128(100.00) |

Note: Percentage values given in parenthesis.

In the present study the age of subjects ranged from 41 years to 70 years, therefore, they were classified as 41-50 years, 51-60 years and 61-70 years in order to obtain age wise detailed

information about the disease. Out of total male subjects (n=66), 37.88 percent were in the age group of 41-50 years, 33.33 percent were in the 51-60 years of age group and 28.79 percent were in the range of 61-70 years. In case of female subjects (n=62), 40.32 percent belonged to 41-50 years, 33.87 percent were in 51-60 years of age group and 25.81 percent were falling in the age group of 61-70 years.

Roy *et al.*, (2006) [6] and Bharathi & Amirthaveni (2007) [3] also reported that middle aged persons (3rd, 4th or 5th decade of their life) are more prone to the urinary stone disease like present findings.

Table 2: Age wise distribution of subjects according to their stone description

| Stone Description | Specific characteristics | Male subjects | | | | Female subjects | | | | Grand Total N=128 |
|-------------------|--------------------------|----------------|----------------|---------------|-------------|-----------------|----------------|----------------|-------------|-------------------|
| | | 41-50 yrs n=25 | 51-60 yrs n=22 | 61-70yrs n=19 | Total n=66 | 41-50 yrs n=25 | 51-60 yrs n=21 | 61-70 yrs n=16 | Total n=62 | |
| Site of Stone | Kidney | 11(16.67) | 9(13.64) | 13(19.70) | 33(50.00) | 14(22.58) | 13(20.97) | 11(17.74) | 38(61.29) | 71 (55.47) |
| | Ureter | 10 (15.20) | 4 (6.10) | 16(24.24) | 30(45.00) | 4 (6.45) | 6 (9.68) | 2 (3.23) | 12(19.35) | 42 (32.81) |
| | PUJ | 1 (1.52) | - | - | 1(1.52) | - | - | 3(4.84) | 3(4.84) | 4(3.13) |
| | Bladder | 1(1.52) | 5(7.58) | - | 6(9.09) | 1(1.61) | 1(1.61) | - | 2(3.03) | 8(6.25) |
| | VUJ | 1(1.52) | - | - | 1(1.52) | 4(6.45) | - | 1(1.61) | 5(8.06) | 6(4.69) |
| | Urethra | - | 1(1.52) | - | 1(1.52) | - | - | - | - | 1(0.78) |
| | Multiple site | 1(1.52) | 3(4.55) | - | 4(6.06) | 2(3.23) | 1(1.61) | 2(3.23) | 5(8.06) | 9(7.03) |
| | Total subjects | 25 (37.88) | 22 (33.33) | 19 (28.79) | 66 (100.00) | 25 (40.32) | 21 (33.87) | 16 (25.81) | 62 (100.00) | 128 (100.00) |
| Number of stone | Single | 14 (21.21) | 15(22.73) | 11(16.67) | 40(60.61) | 15(24.19) | 13(20.97) | 6(9.68) | 34(54.84) | 74(57.81) |
| | Multiple | 11(16.67) | 7(10.61) | 8(12.12) | 26(39.40) | 10(16.13) | 8(12.90) | 10(16.13) | 28(45.16) | 54(42.19) |
| | Total subjects | 25 (37.88) | 22 (33.34) | 19 (28.79) | 66 (100.00) | 25 (40.32) | 21 (33.87) | 16 (25.81) | 62 (100.00) | 128 (100.00) |

Note: Percentage values given in parenthesis.

Irrespective of age, maximum number of male (50.00%) and female (61.29%) subjects reported kidney as a site of their stone formation followed by other sites of urinary tract i.e. ureter (45.00% & 19.35%), bladder (9.09% & 3.03%), multiple site (6.06% & 8.06%), pelvic-ureteric junction (1.52% & 4.84%), vesiculo - ureteric junction (1.52% & 8.06%) and urethra (1.52% & 0.00%). Ahmed *et al.*, (2015) [1] conducted study on 1236 urinary calculi patients and 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 (57.81%) as compared to findings about multiple stones (42.19%).

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

| S. No. | Sign and Symptoms | Male subjects | | | | Female subjects | | | | Grand Total |
|--------|---|---------------|------------|------------|-------------|-----------------|------------|------------|-------------|--------------|
| | | 41-50 yrs | 51-60 yrs | 61-70 yrs | Total | 41-50 yrs | 51-60 yrs | 61-70 yrs | Total | |
| 1 | Renal Colic, Nausea, Vomiting | 10 (15.15) | 3 (4.55) | 4 (6.06) | 17 (25.76) | 9 (14.52) | 6 (9.68) | 5 (8.07) | 20 (32.26) | 37 (28.91) |
| 2 | Renal Colic, Nausea, Vomiting, Burning on urination | 11 (16.67) | 9 (13.64) | 8 (12.12) | 28 (42.42) | 9 (14.52) | 7 (11.29) | 6 (9.68) | 22 (35.48) | 50 (39.06) |
| 3 | Renal Colic, Nausea, Vomiting, Burning on urination, Haematuria | - | - | - | - | 1 (1.61) | 1 (1.61) | - | 2 (3.23) | 2 (1.56) |
| 4 | Renal Colic, Nausea, Vomiting, Fever | 3 (4.55) | 4 (6.06) | - | 7 (10.61) | 5 (8.07) | 2 (3.23) | 5 (8.07) | 12 (19.36) | 19 (14.84) |
| 5 | Renal Colic, Nausea, Vomiting, Haematuria | 1 (1.52) | 6 (9.09) | 7 (10.61) | 14 (21.21) | 1 (1.61) | 5 (8.07) | - | 6 (9.68) | 20 (15.63) |
| | Grand Total | 25 (37.88) | 22 (32.33) | 19 (28.79) | 66 (100.00) | 25 (40.32) | 21 (33.87) | 16 (25.81) | 62 (100.00) | 128 (100.00) |

Note: Percentage values given in parenthesis.

Table 3, describes that presence of renal colic, nausea, vomiting and burning on urination was a common feature of urolithiasis among all the subjects, immaterial of their gender and age. Other symptoms like hematuria and fever were also reported by 21.21% & 12.90% and 10.61% & 19.36% 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 1.06. Greater number of subjects (37.88% & 40.32%) belonged to 41-50 years than that of 51-60 years (33.33% & 33.87%) and 61-70 years (28.79% & 25.81%) age category. Kidney was reported to be the most common site of stone formation for

majority of the subjects (55.47%) followed by ureter (32.81%), bladder (6.25%), multiple site (7.03%), PUJ (3.13%), VUJ (4.69%) and urethra (0.78%). Frequency of single stone was greater (57.81%) than multiple stone (42.19%). Majority of the subjects (39.06%) reported for renal colic, nausea, vomiting and burning on urination, but 14.84 percent to 15.63 percent subjects also complained for hematuria and fever along with common sign and symptoms.

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