

# A study of clinico demographic profile of patients with renal colic at tertiary health care center

Abhijit Nagapurkar<sup>1</sup>, Digvijay Ghodake<sup>2\*</sup>, Nikit Mehta<sup>3</sup>, Anil G Joshi<sup>4</sup>

<sup>1</sup>Assistant Professor, <sup>2</sup>Junior Resident, <sup>3</sup>Associate Professor, <sup>4</sup>Professor and HOD, Department of Radio diagnosis, B V M C and Hospital, Sangli, Maharashtra, INDIA.

Email: [digvi4630@gmail.com](mailto:digvi4630@gmail.com)

## Abstract

**Background:** Kidney stone disease, also known as urolithiasis, is when a solid piece of material (kidney stone) occurs in the urinary tract.<sup>2</sup> Kidney stones typically form in the kidney and leave the body in the urine stream. **Aims and Objectives:** To Study Clinico Demographic profile of patients with Renal Colic at tertiary health care center. **Methodology:** 104 patients presenting with symptoms typical of renal colic attending the medical and surgical OPD in santhiram medical college and general hospital. All patients presenting with symptoms typical of renal colic attending the medicine and surgical OPD in santhiram medical college and general hospital. Pregnant women excluded from the study. The data was analyzed by T-test in statistical package for the social science (SPSS) version 18. **Result:** In our study we have seen that The majority of the patients were from the age group of 31-40 - 25.96%, followed by 21-30 were 22.1%, 41-50-17.30%, 51-60 were 13.46%, 11-20 -9.61%, 61-70 were 5.76, 0-10 were 3.8%. The majority of the patients were Male i.e. 75.92% followed by Female were 24.08%. The most common occupations were Manual labor in 40.3%, followed by Agriculture in 29.80%, Housewife in 11.5%, Student in 10.5%, Others-5.76%. The majority of the patients were having Vegetarian diet i.e. 64.64% and Mixed diet in 35.36%. The majority of the patients Consumed Hard water i.e. 76.96% and 23.04 % have consumed Not-a hard water. The majority of the patients were having Colicky pain in flank in 90%, Urinary urgency in 85%, Hematuria in 80%, Sweating, nausea and Vomiting in 75%, Burning micturition in 60%, Fever with chills in 52%. **Conclusion:** It can be concluded from our study that the majority of the patients were from the age group of 31-40, the most of the patients were Male, the most common occupations were Manual labor followed by Agriculture, the majority of the patients were having Vegetarian diet, the majority of the patients Consumed Hard water and majority of the patients were having Colicky pain in flank Urinary urgency etc. **Key Words:** Renal calculi, UTI (Urinary Tract Infection), Hard water, Hematuria, Symptoms of Renal calculi.

## \*Address for Correspondence:

Dr. Digvijay Ghodake, Junior Resident, Department of Radio diagnosis, B V M C and Hospital, Sangli, Maharashtra, INDIA.

Email: [digvi4630@gmail.com](mailto:digvi4630@gmail.com)

Received Date: 06/10/2017 Revised Date: 10/11/2017 Accepted Date: 07/12/2017

DOI: <https://doi.org/10.26611/1004122>

## Access this article online

Quick Response Code:



Website:

[www.medpulse.in](http://www.medpulse.in)

Accessed Date:  
09 December 2017

## INTRODUCTION

Kidney stone disease, also known as urolithiasis, is when a solid piece of material (kidney stone) occurs in the urinary tract.<sup>[2]</sup> Kidney stones typically form in the kidney and leave the body in the urine stream.<sup>2</sup> A

small stone may pass without causing symptoms.<sup>2</sup> If a stone grows to more than 5 millimeters (0.2 in) it can cause blockage of the ureter resulting in severe pain in the lower back or abdomen.<sup>2,7</sup> A stone may also result in blood in the urine, vomiting, or painful urination.<sup>2</sup> About half of people will have another stone within ten years.<sup>8</sup> Most stones form due to a combination of genetics and environmental factors.<sup>2</sup> Risk factors include high urine calcium levels, obesity, certain foods, some medications, calcium supplements, hyperparathyroidism, gout and not drinking enough fluids.<sup>2,8</sup> Stones form in the kidney when minerals in urine are at high concentration.<sup>2</sup> The diagnosis is usually based on symptoms, urine testing, and medical imaging.<sup>[2]</sup> Blood tests may also be useful.<sup>2</sup> Stones are typically classified by their location: nephrolithiasis (in the kidney), ureterolithiasis (in the ureter), cystolithiasis (in the bladder), or by what they

are made of (calcium oxalate, uric acid, struvite, cystine).<sup>2</sup> In those who have had stones, prevention is by drinking fluids such that more than two liters of urine are produced per day.<sup>4</sup> If this is not effective enough, thiazide diuretic, citrate, or allopurinol may be taken.<sup>4</sup> It is recommended that soft drinks containing phosphoric acid (typically colas) be avoided.<sup>4</sup> When a stone causes no symptoms, no treatment is needed.<sup>2</sup> Otherwise pain control is usually the first measure, using medications such as nonsteroidal anti-inflammatory drugs or opioids.<sup>7,9</sup> Larger stones may be helped to pass with the medication tamsulosin<sup>10</sup> or may require procedures such as extracorporeal shock wave lithotripsy, ureteroscopy, or percutaneous nephrolithotomy.<sup>2</sup> Between 1% and 15% of people globally are affected by kidney stones at some point in their life.<sup>[8]</sup> In 2015, 22.1 million cases occurred,<sup>[5]</sup> resulting in about 16,100 deaths.<sup>6</sup> They have become more common in the Western world since the

1970s.<sup>8</sup> Generally, more men are affected than women.<sup>2</sup> Kidney stones have affected humans throughout history with descriptions of surgery to remove them dating from as early as 600 BC.<sup>1</sup>

## MATERIAL AND METHODS

104 patients presenting with symptoms typical of renal colic attending the medical and surgical OPD in santhiram medical college and general hospital. All patients presenting with symptoms typical of renal colic attending the medicine and surgical OPD in santhiram medical college and general hospital. Pregnant women excluded from the study. The data was analyzed by T-test in statistical package for the social science (SPSS) version<sup>18</sup>.

## RESULT

(3 cases of appendicitis, 1 case of ureteric stricture)

**Table 1: Age wise distribution**

| Age Group    | CT Calculus |           |          |          |          | Total      | Percentage % |
|--------------|-------------|-----------|----------|----------|----------|------------|--------------|
|              | Kidney      | Ureter    | Bladder  | Absent   | Urethra  |            |              |
| 0-10         | 0           | 4         | 0        | 0        | 0        | 4          | 3.8          |
| 11-20        | 3           | 6         | 0        | 1        | 0        | 10         | 9.61         |
| 21-30        | 8           | 9         | 0        | 2        | 2        | 23         | 22.1         |
| 31-40        | 10          | 16        | 0        | 0        | 0        | 27         | 25.96        |
| 41-50        | 9           | 10        | 0        | 0        | 2        | 18         | 17.30        |
| 51-60        | 6           | 1         | 4        | 1        | 2        | 14         | 13.46        |
| 61-70        | 2           | 2         | 2        | 0        | 0        | 6          | 5.76         |
| 71-80        | 2           | 0         | 0        | 0        | 0        | 2          | 1.92         |
| <b>Total</b> | <b>40</b>   | <b>48</b> | <b>6</b> | <b>4</b> | <b>6</b> | <b>104</b> | <b>100</b>   |

The majority of the patients were from the age group of 31-40 - 25.96%, followed by 21-30 were 22.1%, 41-50-17.30%, 51-60 were 13.46%, 11-20 -9.61%,61-70 were 5.76, 0-10 were 3.8%.

**Table 2: Sex wise distribution**

|              |        | CT calculus |           |          |          |          | Total      | Percentage %  |
|--------------|--------|-------------|-----------|----------|----------|----------|------------|---------------|
|              |        | Kidney      | Ureter    | Bladder  | Absent   | Urethra  |            |               |
| sex          | Male   | 25          | 34        | 6        | 2        | 6        | 73         | 75.92         |
|              | Female | 15          | 14        | 0        | 2        | 0        | 31         | 24.08         |
| <b>Total</b> |        | <b>40</b>   | <b>48</b> | <b>6</b> | <b>4</b> | <b>6</b> | <b>104</b> | <b>100.00</b> |

The majority of the patients were Male i.e. 75.92% followed by Female were 24.08%.

**Table 3: Distribution of the patients as per the Occupation**

|              |              | CT Calculus |           |          |          |          | Total | Percentage % |
|--------------|--------------|-------------|-----------|----------|----------|----------|-------|--------------|
|              |              | Kidney      | Ureter    | Bladder  | Absent   | Urethra  |       |              |
| Occupation   | Manual labor | 14          | 22        | 2        | 0        | 4        | 42    | 40.3         |
|              | Agriculture  | 9           | 18        | 2        | 1        | 2        | 31    | 29.80        |
|              | Housewife    | 7           | 3         | 0        | 2        | 0        | 12    | 11.5         |
|              | Student      | 0           | 11        | 0        | 1        | 0        | 11    | 10.5         |
|              | Others       | 4           | 0         | 2        | 0        | 0        | 6     | 5.76         |
| <b>Total</b> |              | <b>34</b>   | <b>54</b> | <b>6</b> | <b>4</b> | <b>6</b> |       |              |

The most common occupations were Manual labor in 40.3%, followed by Agriculture in 29.80%, Housewife in 11.5%, Student in 10.5%, Others-5.76%.

**Table 4: Food Habits**

|      |              | CT Calculus |           |          |          |          | Total      | Percentage % |
|------|--------------|-------------|-----------|----------|----------|----------|------------|--------------|
|      |              | Kidney      | Ureter    | Bladder  | Absent   | Urethra  |            |              |
| Food | Mixed        | 15          | 12        | 2        | 1        | 4        | 34         | 35.36        |
|      | Vegetarian   | 25          | 36        | 4        | 3        | 2        | 70         | 64.64        |
|      | <b>Total</b> | <b>40</b>   | <b>48</b> | <b>6</b> | <b>4</b> | <b>6</b> | <b>104</b> |              |

The majority of the patients were having Vegetarian diet i.e. 64.64% and Mixed diet in 35.36%.

**Table 5: Water Intake and CT Calculus**

|       |              | CT Calculus |           |          |          |          | Total      | Percentage % |
|-------|--------------|-------------|-----------|----------|----------|----------|------------|--------------|
|       |              | Kidney      | Ureter    | Bladder  | Absent   | Urethra  |            |              |
| Water | Hard         | 36          | 34        | 2        | 2        | 4        | 74         | 76.96        |
|       | Not-hard     | 4           | 14        | 4        | 2        | 2        | 30         | 23.04        |
|       | <b>Total</b> | <b>40</b>   | <b>48</b> | <b>6</b> | <b>4</b> | <b>6</b> | <b>104</b> |              |

The majority of the patients Consumed Hard water i.e. 76.96% and 23.04 % have consumed Not-a hard water.

**Table 6: Distribution of the patients as per the Symptoms**

| Symptoms                      | No. | Percentage (%) |
|-------------------------------|-----|----------------|
| Colicky pain in flank         | 94  | 90%            |
| Urinary urgency               | 88  | 85%            |
| Hematuria                     | 83  | 80%            |
| Sweating, nausea and Vomiting | 78  | 75%            |
| Burning micturition           | 62  | 60%            |
| Fever with chills             | 54  | 52%            |

(More than one symptom may be present)

The majority of the patients were having Colicky pain in flank in 90%, Urinary urgency in 85%, Hematuria in 80%, Sweating, nausea and Vomiting in 75%, Burning micturition in 60%, Fever with chills in 52%.

## DISCUSSION

There is strong evidence that diminished fluid and calcium consumption are risk factors.<sup>11,12-15</sup> Increased oxalate consumption has also been demonstrated to promote stone formation.<sup>16,17</sup> Epidemiologic studies have demonstrated that increased sodium and animal protein intake have an equivocal impact on stone risk. However, a randomized prospective dietary intervention study demonstrated that reduction of sodium and animal protein and maintenance of normal dietary calcium intake attenuates stone activity in recurrent hypercalciuric stone formers.<sup>11</sup> There is evidence that the consumption of animal protein has increased in a number of countries, paralleling the acceleration of stone disease. There are also studies that demonstrate an increased intake of sodium and sodium-rich foods in certain cohorts.<sup>16</sup> Global climate change is another environmental factor that affects stone disease rates. For many years the concept of global warming has been debated, and today it is more accepted as a legitimate phenomenon. The general consensus is that average global temperatures have increased.<sup>17</sup> In addition, studies have documented the association between increased environmental

temperatures and increased kidney stone rates.<sup>18</sup> Two recent studies have shown the temporal relationship between exposure to high temperatures and the subsequent development of kidney stones. Evans and Costabile<sup>19, 20</sup> compared the time of arrival of US soldiers to Kuwait and the time to development of acute renal colic at a US military hospital. Doumerc and colleagues<sup>21</sup> recorded temperature and number of renal colic admissions at a French tertiary care center between 2002 and 2004. In our study we have seen that The majority of the patients were from the age group of 31-40 - 25.96%, followed by 21-30 were 22.1%, 41-50-17.30%, 51-60 were 13.46%, 11-20 -9.61%, 61-70 were 5.76, 0-10 were 3.8%. The majority of the patients were Male i.e. 75.92% followed by Female were 24.08%. The most common occupations were Manual labor in 40.3%, followed by Agriculture in 29.80%, Housewife in 11.5%, Student in 10.5%, Others-5.76%. The majority of the patients were having Vegetarian diet i.e. 64.64% and Mixed diet in 35.36%. The majority of the patients Consumed Hard water i.e. 76.96% and 23.04 % have consumed Not-a hard water. The majority of the patients were having Colicky pain in flank in 90%, Urinary urgency in 85%, Hematuria in 80%, Sweating, nausea and Vomiting in 75%, Burning micturition in 60%, Fever with chills in 52%.

## CONCLUSION

It can be concluded from our study that the majority of the patients were from the age group of 31-40, the most of the patients were Male, the most common occupations were Manual labor followed by Agriculture, the majority of the patients were having Vegetarian diet, the majority of the patients Consumed Hard water and majority of the patients were having Colicky pain in flank Urinary urgency etc.

## REFERENCES

- Schulsinger, David A. (2014). Kidney Stone Disease: Say NO to Stones!. Springer.

- p. 27. ISBN 9783319121055. Archived from the original on 8 September 2017.
2. "Kidney Stones in Adults". February 2013. Archived from the original on 11 May 2015. Retrieved 22 May 2015.
3. Knoll, Thomas; Pearle, Margaret S. (2012). *Clinical Management of Urolithiasis*. Springer Science and Business Media. p. 21. ISBN 9783642287329. Archived from the original on 8 September 2017.
4. Qaseem, A; Dallas, P; Forciea, MA; Starkey, M; et al. (4 November 2014). "Dietary and pharmacologic management to prevent recurrent nephrolithiasis in adults: A clinical practice guideline from the American College of Physicians". *Annals of Internal Medicine*. 161 (9): 659–67. PMID 25364887. doi:10.7326/M13-2908.
5. GBD 2015 Disease and Injury Incidence and Prevalence, Collaborators. (8 October 2016). "Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015". *Lancet*. 388 (10053): 1545–1602. PMC 5055577. PMID 27733282. doi:10.1016/S0140-6736(16)31678-6.
6. GBD 2015 Mortality and Causes of Death, Collaborators. (8 October 2016). "Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015". *Lancet*. 388 (10053): 1459–1544. PMID 27733281. doi:10.1016/s0140-6736(16)31012-1.
7. Miller, NL; Lingeman, JE (2007). "Management of kidney stones" (PDF). *BMJ*. 334 (7591): 468–72. PMC 1808123. PMID 17332586. doi:10.1136/bmj.39113.480185.80. Archived (PDF) from the original on 27 December 2010.
8. Morgan, MS; Pearle, MS (14 March 2016). "Medical management of renal stones". *BMJ (Clinical research ed.)*. 352: i52. PMID 26977089. doi:10.1136/bmj.i52.
9. Afshar, K; Jafari, S; Marks, AJ; Eftekhari, A; MacNeily, AE (29 June 2015). "Nonsteroidal anti-inflammatory drugs (NSAIDs) and non-opioids for acute renal colic". *The Cochrane database of systematic reviews*. 6: CD006027. PMID 26120804. doi:10.1002/14651858.CD006027.pub2.
10. Wang, RC; Smith-Bindman, R; Whitaker, E; Neilson, J; Allen, IE; Stoller, ML; Fahimi, J (7 September 2016). "Effect of Tamsulosin on Stone Passage for Ureteral Stones: A Systematic Review and Meta-analysis". *Annals of Emergency Medicine*. PMID 27616037. doi:10.1016/j.annemergmed.2016.06.044.
11. Borghi L, Ferretti PP, Elia GF, et al. Epidemiological study of urinary tract stones in a northern Italian city. *Br J Urol*. 1990; 65:231–235. [PubMed]
12. Curhan GC, Willett WC, Speizer FE, Stampfer MJ. Beverage use and risk for kidney stones in women. *Ann Intern Med*. 1998; 128:534–540. [PubMed]
13. Curhan GC, Willett WC, Rimm EB, Stampfer MJ. Family history and risk of kidney stones. *J Am Soc Nephrol*. 1997;8:1568–1573. [PubMed]
14. Hirvonen T, Pietinen P, Virtanen M, et al. Nutrient intake and use of beverages and the risk of kidney stones among male smokers. *Am J Epidemiol*. 1999; 150:187–194. [PubMed]
15. Meschi T, Maggiore U, Fiaccadori E, et al. The effect of fruits and vegetables on urinary stone risk factors. *Kidney Int*. 2004; 66:2402–2410. [PubMed]
16. Taylor EN, Curhan GC. Oxalate intake and the risk for nephrolithiasis. *J Am Soc Nephrol*. 2007; 18:2198–2204. [PubMed]
17. Engstrom A, Tobelmann RC, Albertson AM. Sodium intake trends and food choices. *Am J Clin Nutr*. 1997; 65(suppl):704S–707S. [PubMed]
18. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri RK, Reisinger A, eds.] Geneva, Switzerland: IPCC; 1977. Intergovernmental Panel on Climate Change. Climate Change 2007: Synthesis Report.
19. Brikowski TH, Lotan Y, Pearle MS. Climate-related increase in the prevalence of urolithiasis in the United States. *Proc Natl Acad Sci USA*. 2008; 105:9841–9846. [PMC free article] [PubMed]
20. Evans K, Costabile RA. Time to development of symptomatic urinary calculi in a high risk environment. *J Urol*. 2005; 173:858–861. [PubMed]
21. Doumerc N, Game X, Mouzin M, et al. Suggestion of a two-month delay between extreme temperatures and renal colic. *J Urol*. 2008; 179(suppl):481.

Source of Support: None Declared  
Conflict of Interest: None Declared