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A Study on Microbial and Biochemical Stone Analysis in Urinary Calculi Patients

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ABSTRACT:
Kidney stones are deposits in the upper urinary tract that consists of various mineral salts combined with an organic matrix. A stone can induce urinary tract obstruction and infection as it travels from the kidney to the ureter, as well as renal colic symptoms. The purpose of this study was to determine the frequency of disease occurrence in both male patients and female patients. This is a observational comparative study conducted over a period of 6 months. Our study, included 88 patients diagnosed with urinary calculi. A wide range of patients were involved in the study whose age group ranges from 17 years to below 75 years. According to our study, the overall patients demographics of gender distribution in the study are, 50 patients were males (56.82%) and 38 patients were females (43.18%). In ourstudy we concluded that urinary calculi patients were most observed between 30-47 years of age followed by patients aged 47- 60 years. The majority of kidney stones are composed of calcium stones (Calcium Oxalate and Calcium Phosphate). According to this study male patients were more prone than female patients.

Key words: Kidney stones, Calcium Phosphate, Calcium Oxalate and Uric acid.

I. INTRODUCTION:

The urinary system comprises two kidney beans, ureter, a bladder and a urethra. Positioned in the middle of the back, below the ribs, the kidneys filter water and waste from the blood, transforming it into urine [1]. These stones from through the accumulation of polycrystalline aggregates with varying levels of crystalloid and organic matrix[2]. kidney stones can vary in shapes, sizes and colors depending on their composition. While smaller stones may pass unnoticed in urine without symptoms, larger ones can cause discomfort during passage. If the stone surface is rough, severe pain may occur, necessitating medical intervention for larger stones unable to pass through the urinary stones [3]. An elevated risk of stone formation caused by the several factors like insufficient hydration, persistent urinary infections, vitamin imbalance, microbial infections, insufficient dietary elements and elevatedlevels of calcium, phosphate and uric acid in the urine [4-6. Calcium constituents the primary component in renal calculi, with kidney stones occurring in 1 out of 10 people during their lifetime[7]. Nephrolithiasis, when linked with nephrocalcinosis, accounts 2 to 3% of cases leading to end stage renal disease[8]. Kidney stones may be genetically predisposed.Cystinuria, a hereditary condition, increases the likelihood of acquiring cystine stones. People with kidney infections and urinary tract infections (UTIs) are more likely to develop struvite stones compared to other disorders. Obesity may also raise the risk of kidney stones[9].

II. METHODOLOGY:

There research conducted at Kadiyala super speciality hospital, Narasaraopet, was a observational comparative study over a period of six months. Inclusion criteria comprised all the inpatients were diagnosed with renal calculi, the patients involved in the study above age of 17 years and below the age of 75 years and the patients who are willing to participate in the study. Exclusion criteria included patients who are with chronic conditions in ICU and pregnant women, the patients who are not willing to participate in the stud. Data for the study was obtained and analyzed from inpatient records and the medical record department.

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III. RESULT AND DISCUSSION:

The present study included 88 patients with various age groups on that 50 patients were males (56.82%) and 38 patients were females (43.18%). (Fig:1).

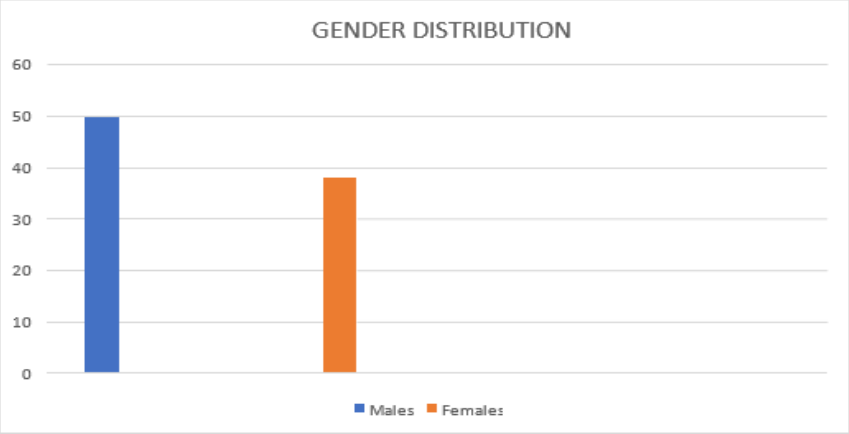

FIGURE-1: Based on Gender Distribution.

FIGURE-2: Based on Age Distribution.

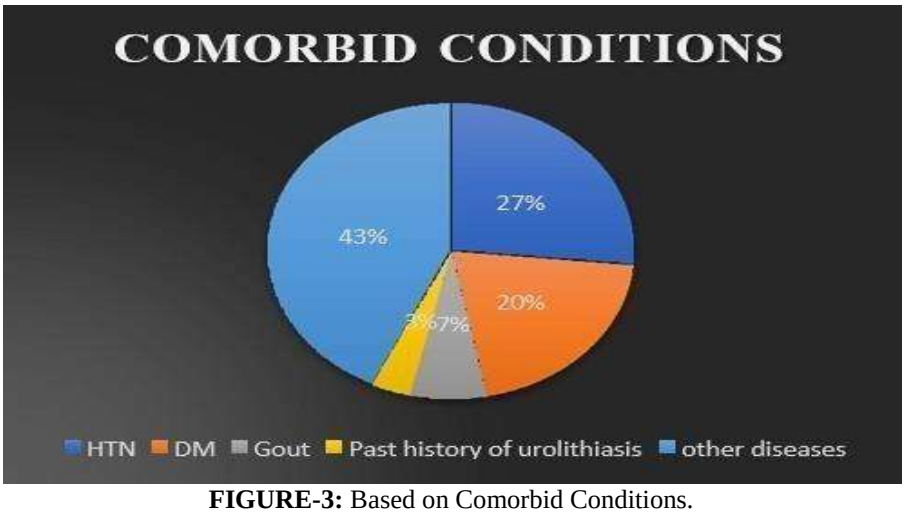

FIGURE-3: Based on Comorbid Conditions.

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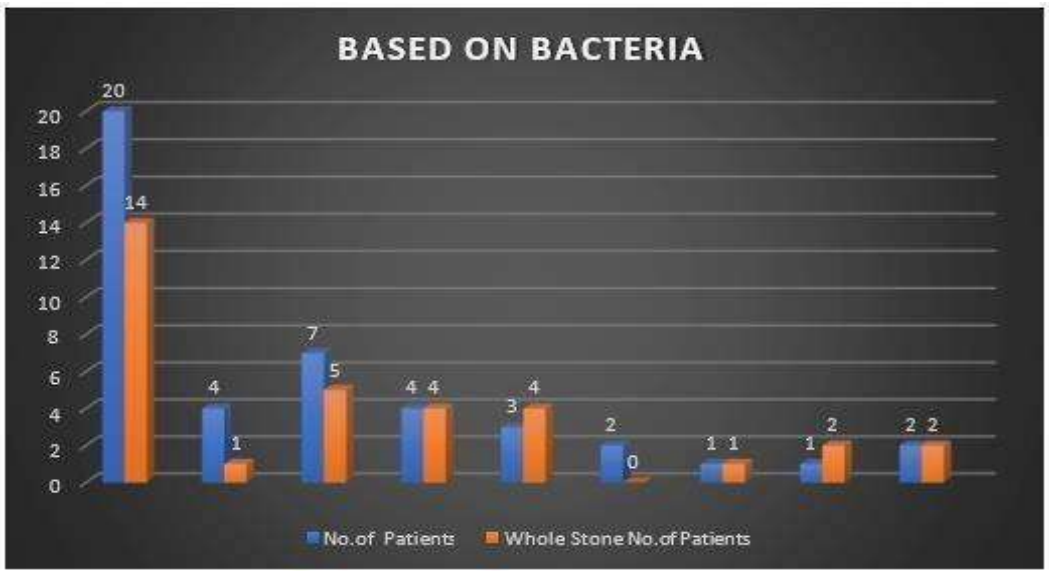

FIGURE-4: Based on Bacteria.

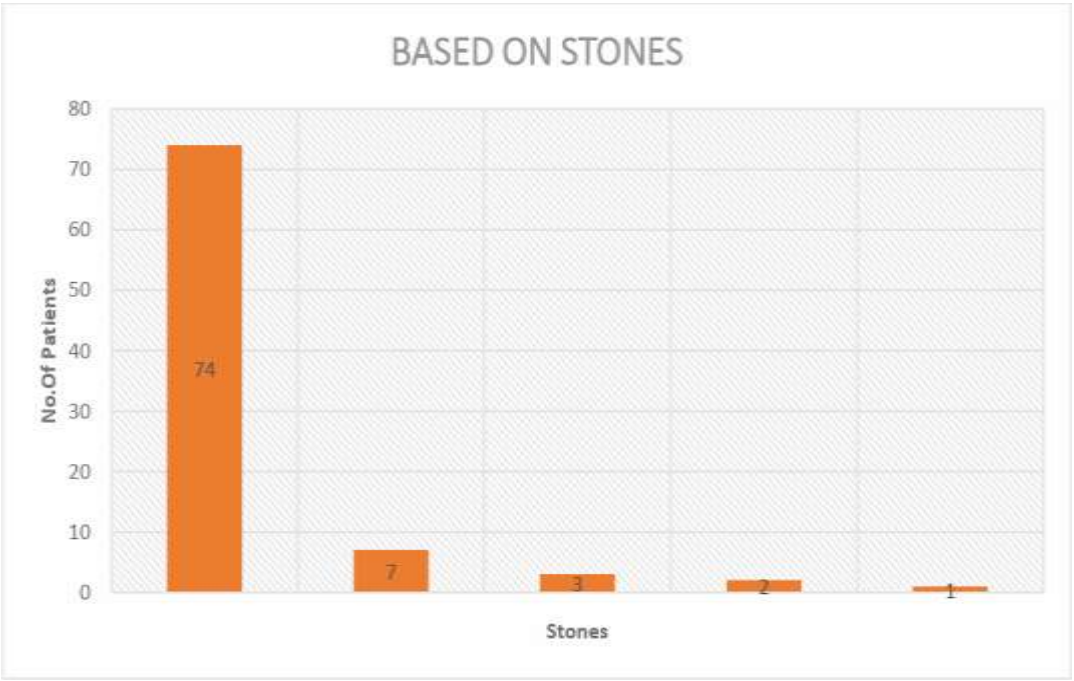

FIGURE-5: Based on Stones.

Higher percentage of urinary calculi were most observed between the age groups of 30- 47 and we can state that the people between these age groups are more prone to urinary calculi. (Fig:2) Comorbidities conditions associated with our study population were Hypertension (27%) was found in most of the cases followed by the Diabetes mellitus (20%),Gout (7%), Past history of Urolithiasis (3%) and other diseases having (43%). (Fig:3) Based on the bacteria isolated from uric will shown in the figure like a number of patients and whole stone number of patients, in with different colour modifications. (Fig:4) Based on stones, the patients are more effected to calcium oxalate stones (84%) compared to other stones. (Fig:5).

IV. CONCLUSION:

The present study underscores the important of micro-biological analysis of stones for complete sterilization of urinary system and

prevention of recurrent. It can shows that the prevention is better than cure.

Conflict of interest: Nill

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