

# PROFILE OF PATIENTS WITH URINARY TRACT STONE AT UROLOGY DEPARTMENT OF SOETOMO GENERAL HOSPITAL SURABAYA IN JANUARY 2016-DECEMBER 2016

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## ABSTRACT

**Objective:** To identify the profile of patients with urinary tract stones at the Urology Department of Soetomo General Hospital Surabaya in January 2016-December 2016. **Material & Methods:** This was descriptive retrospective research conducted at the Urology Department of Soetomo General Hospital Surabaya. The data were obtained from medical records of patients diagnosed with urinary tract stone, with the amount of data collected was 62. The variables included were age, gender, address, main complaint, type and location of urinary tract stone. **Results:** The ratio of male:female among patients with urinary tract stone is 33:29. Most of the patients with urinary tract stone were aged 46-60 years old (52%), came with the main complaint of flank pain (79%), had the uric acid type of urinary tract stone (48%), and had urinary tract stone located at the kidneys (65%). **Conclusion:** Profile of patients with urinary tract stone at the Urology Department of Soetomo General Hospital Surabaya is as following: Ratio of male:female among patients with urinary tract stone is 33:29. Most of the patients with urinary tract stone were aged 46-60 years old, came with the main complaint of flank pain, had the uric acid type of urinary tract stone, and had urinary tract stone located at the kidneys.

**Keywords:** Urinary tract stone, age group, gender, main complaint, type of urinary tract stone, location of urinary tract stone.

## ABSTRAK

**Tujuan:** Mengidentifikasi profil pasien batu saluran kemih di SMF Urologi, RSUD Dr. Soetomo Surabaya Periode Januari 2016-Desember 2016. **Bahan & Cara:** Penelitian ini adalah deskriptif retrospektif yang dilakukan di SMF Urologi, RSUD Dr. Soetomo Surabaya. Data didapatkan dari rekam medis yang didiagnosis batu saluran kemih, dengan jumlah 62 rekam medis. Usia, jenis kelamin, keluhan utama, jenis batu saluran kemih, lokasi batu saluran kemih dimasukkan sebagai variabel. **Hasil:** Perbandingan laki dengan perempuan pasien BSK yaitu 33:29. Sedangkan, pasien BSK terbanyak adalah kelompok usia 46-60 tahun (52%), nyeri pinggang (79%), uric acid atau asam urat (48%), dan lokasi batu di ginjal (65%). **Simpulan:** Profil pasien batu saluran kemih di SMF Urologi, RSUD Dr. Soetomo Surabaya didapatkan perbandingan antara jenis kelamin laki-laki dengan perempuan yaitu 33:29. Kelompok usia terbanyak yaitu 46-60 tahun, keluhan utama terbanyak yaitu nyeri pinggang, jenis batu saluran kemih terbanyak yaitu uric acid atau asam urat, dan lokasi batu terbanyak yaitu berada di ginjal.

**Kata Kunci:** Batu saluran kemih, kelompok usia, jenis kelamin, keluhan utama, jenis batu saluran kemih, lokasi batu saluran kemih.

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## INTRODUCTION

Urinary tract stones (UTS) or urolithiasis is a pathologic state which its incidence, etiology, pathogenesis and therapy aspect is usually questioned.<sup>1</sup> Urinary tract stones disease has been known since Babylonian and Ancient Egypt time. One of the evidence that has been found is stone in

the bladder of a mummy.<sup>2</sup> Stone formation in the urinary tract is suspected because of infection, obstruction, dehydration, urinary tract problem, congenital, metabolic disease, and idiopathic. In Indonesia, the case of UTS is still many, but the complete data about it is not much reported yet.<sup>2</sup> Data shows that the prevalence of Indonesian who suffer kidney stone is 0.6% or 6 per 1000 people.<sup>3</sup>

Diet with high purine, oxalate, and calcium make the disease easily happened. This disease is usually found in people who have a job that required many sitting positions or less physical activity. Less physical activity and working-out can trigger this urolithiasis disease. Therefore, change lifestyle and diet into a healthier one is necessary to prevent urinary tract stones to manifest.<sup>2</sup> It is important to require the data of content/composition in the stone to prevent the possibility of urinary tract stones recurrence. Based on that fact, the author is motivated to know about the profile of UTS patients in the Clinical Pathology Laboratory, especially in Soetomo General Hospital Surabaya. The objective of this research is to identify the profile of UTS patients based on age, gender, main complaint, stone type, and the location of the stone. The benefit of this research data can be used as data for the pre-clinic and clinic people in the prevention and treatment of UTS.

## OBJECTIVE

This study aims to identify the profile of patients with urinary tract stones at the Urology

Department of Soetomo General Hospital Surabaya in January 2016-December 2016.

## MATERIAL & METHODS

This was descriptive retrospective research conducted at the Urology Department of Soetomo General Hospital Surabaya. The data were obtained from medical records of patients diagnosed with urinary tract stone, with the amount of data collected was 62. While the amount of data stone type collected was 122. The variables included were age, sex, address, chief complaint, type, and location of urinary tract stone. We look at the different types of stone: Calcium carbonate, Calcium oxalate, Calcium phosphate, Struvite, and Uric acid, without differentiate whether it is unilateral or bilateral.

## RESULTS

This research is consists of 33 male patients and 29 female patients. Sample characteristics were noticed base on age, sex, main complaint, type of urinary tract stone, location of urinary tract stone.

**Table 1.** The Distribution of UTS Patient Based on Age, Gender, and Chief Complaint in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period.

Patient profile	Number (n=62)	Percentage (%)
Diagnosed age (years)		
≤15	2	3
16-30	3	5
31-45	9	15
46-60	32	52
61-75	15	24
≥76	1	2
Gender		
Male	33	53
Female	29	47
Chief Complaint		
Lumbar pain	49	79
Urinary retention	1	2
Lumbar pain, nausea, vomiting	1	2
Urinary retention and lumbar pain	1	2
Dysuria	5	8
Urinary retention	1	2
Painless	2	3
Nausea and vomiting	1	2
Lumbar pain and dysuria	1	2

**Table 2.** The Distribution of UTS Patient Based on Stone Type and Location in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period.

Stone Profile	Number (n=62)	Percentage (%)
<b>Stone Type</b>		
Calcium Carbonate	5	4
Calcium Oxalate	14	11
Calcium Phosphate	14	11
Struvite	30	25
Uric Acid	59	48
<b>Stone Location</b>		
Kidney	46	68
Ureter	13	19
Bladder	9	13

## DISCUSSION

This research is to describe the profile of urinary tract stone patient that is hospitalized in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period. The variables researched are age, gender, and chief complaint. The followings are the description of patients who are diagnosed urinary tract stones.

The incidence of UTS is usually happened on age 20-50 years old.<sup>4</sup> Based on table 1, it shows that urinary tract patient data which are hospitalized in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period is dominated by 46-60 years old age group (52%). This data is in line with the previous research. The research in Sanglah Hospital Denpasar in January 2007-December 2007 shows that urinary tract stone patient age is dominated by 46-60 years old age group (39.8%).<sup>5</sup> Research shows that 41-60 years old group (50%) is dominating the incidence rate in Harapan Keluarga Hospital Mataram.<sup>6</sup>

According to table 1. shows that urinary tract stone patient which are hospitalized in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period is dominated by male group (53%). This data is parallel with the previous research. Research shows that the male group is dominating the incidence rate of urinary tract stones in Prof. Dr. R. D. Kandou Hospital Manado.<sup>7</sup> Another research in Sanglah Hospital Denpasar shows that the male group (39.8%) is also dominating the incidence rate of urinary tract stone.<sup>5</sup> Other research is also showing that the male group (72.2%) is dominating the incidence rate of urinary

tract stone in Al-Islam Hospital Bandung.<sup>8</sup> Therefore, it can be concluded that gender male is the major group that suffer urinary tract stone because males have testosterone hormone that may cause the oxalate production in the liver is increased (calcium oxalate stone predisposition) and females have higher urine citrate concentration (citrate can block the formation of calcium oxalate stone).<sup>4</sup>

According to table 1, the result shows that patient with urinary tract stone diagnosis who are hospitalized in SMF Urology, Soetomo General Hospital Surabaya in January-December 2016 period is dominated by a patient with lumbar pain as chief complaint (79%). This data is in line with the previous research. Based on research shows that lumbar pain (93.9%) is the majority of chief complaint in Santa Elisabeth Hospital Medan.<sup>9</sup>

This research is giving a description of the urinary tract stone profile in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period. The variable that is researched is the type and the location of the stone. The type of stone that is researched are calcium carbonate, calcium oxalate, calcium phosphate, struvite, and uric acid. Other than that, the stone location that is researched is kidney, ureter, bladder, kidney and ureter, kidney and bladder.

On table 2, the result of research shows that the urinary tract stone who have hospitalized in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period is dominated by uric acid (48%). In the second place is struvite (25%). Then, the third place is calcium phosphate (11%) and calcium oxalate (11%). This research is different with the previous one, but second place and

third place are the same. The research in Sanglah Hospital Denpasar shows that the research is dominated by the calcium oxalate (72.3%). In the second place is struvite (67.4%) and in the third place is calcium phosphate (42.5%).<sup>10</sup> This difference are indicating there is a shift of risk factor of the patient. Risk factor for the formation of uric acid stone is obesity, alcoholics, and high protein diet. That condition can increase the excretion of uric acid, therefore the pH of urine is becoming low.<sup>11</sup> Meanwhile, the risk factor of calcium oxalate is the patient that suffers bowels irritation went through bowels surgery and patient that consume many foods that are containing oxalate (tea, instant coffee, soft drink beverages, cocoa, berry, citrus lemon, and greens especially spinach) and calcium (milk, cheese, and history of parathyroid tumor).<sup>4</sup> From those risk factors, found data that uric acid stone is in high prevalence, may be caused by the increased prevalence of obesity and high-protein diet.

Based on data, the prevalence of obesity of male adult is increasing (>18 years old) in 2013 as much as (19.7%), way higher than 2007 (13.9%), and 2010 (7.8%). Meanwhile, in 2013 there is also an increasing prevalence of obesity in adult female (>18 years old) as much as (32.9%). It is increased (18.1%) from 2007 (13.9%) and (17.5%) from 2010 (15.5%).<sup>3</sup> In table 2, the result of research from variable stone location shows that a urinary tract stone patient who is hospitalized in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period is dominated by the kidney (68%). The result of this research is also in accordance with the previous research. Research shows that majorly the stone is located in the kidney (59.6%).<sup>10</sup> It is also the same with research that shows mainly stone is located in the kidney (36%).<sup>12</sup>

## CONCLUSION

On retrospective research about Stone Kidney Patient Profile in SMF Urology, Soetomo General Hospital Surabaya in January 2016-December 2016 period is found: the ratio between male and female gender is 33:29, age group is consisted of: 46-60 years old age, 32 patients (52%); 61-75 years old age group, 15 patients (24%); and 31-45 years old age group, 10 patients (16%); and the most of chief complaint is lumbar pain, 49 patients (79%).

From the urinary tract stones profile is found: uric acid stones, 59 patients (48%), and struvite stones, 30 patients (25%), calcium oxalate stones, 14 patients (11%) and calcium phosphate stones, 14 patients (11%). The stone location that is found in the kidney, 46 patients (68%) and stone location in the ureter, 13 patients (19%) and in the bladder, 9 patients (13%).

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