

# The Incidence of Recurrent and Familial Urolithiasis in Central Sri Lanka

AUB Pethiyagoda\*, K Pethiyagoda\*\*

\*Department of Surgery, Faculty of Medicine, University of Peradeniya, Sri Lanka

\*\*Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka

DOI: 10.29322/IJSRP.8.3.2018.p7520

<http://dx.doi.org/10.29322/IJSRP.8.3.2018.p7520>

**Abstract-** Urinary calculi disease is one of the most common urological disorders. The descriptive cross sectional study was conducted to examine the influence of family history and to find the stone recurrence rate on urinary stone disease in Sri Lanka. The sample size of the study population was 142 with the mean age of  $44.65 \pm 13.45$  years. They were evaluated with respect to their past history and family history of the disease. According to the results 58% of subjects were without past history, 42% of them were with past history and 85% of subjects without family history, 15% of them were with family history. Although pathophysiology of urolithiasis, is multifactorial a positive family history may also affect the occurrence and the cause of urinary stone disease. In our study familial urolithiasis was observed in 15% of patients which is lower than world literature. This is a significant finding Sri Lanka being an island nation.

**Index Terms-** urolithiasis, stone recurrence, family history, past history

## I. INTRODUCTION

Urinary calculi disease is one of the most common urological disorders. According to the world literature, the risk of stone recurrence in a 10-year period is approximately 74 %. (1) Stone disease is more common in adult males than females. However, the stone removal is not a successful solution for stone recurrence. (1, 2, 3) Recurrent stone disease depends on the number and the size of stones and making the treatment costs higher than the primary cases (9, 10). Also it makes a serious social and economic problem for the societies. (7) Stones in the urinary tract form a major cause of morbidity, hospitalization and days lost from work (8).

The risk of stone disease depends on various environmental factors (climatic changes, geographical locations, dietary habits, and obesity) and as well as genetic factors (sex, age, race, idiopathic hypercalciuria, hyperoxaluria, and hyperuricosuria) (4)

According to the literature, about 25% of patients with urolithiasis have a family history of stone disease and the relative risk of stone formation is higher in men with a family history than in women those without a family history. (5, 6) Family history positivity has been subjected to a number of studies in recent years (11, 12)

The aim of this study is to examine the influence of family history and to find the recurrence rate on urinary stone disease in Sri Lanka.

## II. MATERIALS AND METHODS

The descriptive cross sectional study was conducted between October 2017 and January 2018, using 142 patients with either a newly diagnosed or a previously documented stone disease. During the study program, all of the patients were evaluated with respect to their history of stone recurrences and family history of urolithiasis. The prepared questionnaire was filled by interviewing the patients. The data were analyzed using the SPSS 20.0 program. Study protocol has been approved by the ethics committee of the faculty and signed consent was obtained from all subjects before interview.

## III. RESULTS

The sample size of the study population was 142 with the mean age of  $44.65 \pm 13.45$  years. They were evaluated with respect to their past history and family history of the disease.

Figure 1- presence of past history of urolithiasis

Figure 2- Presence of family history of urolithiasis

## IV. DISCUSSION

Although a variety of publications have focused on a positive family history for the onset and recurrence as well as for the prevalence of urinary stones. However, the exact relationship between the familial predisposition and the stone formation in primary urolithiasis has been incompletely analyzed. According to the world literature, stone-forming patients with positive family history were affected by the disease at younger ages [13] However we don't have any data regarding the recurrent stone formers in Sri Lanka. Our study was the first retrospective study undertaken to study the recurrence rate of urolithiasis and also the familial tendency of urolithiasis in Sri Lanka.

## V. CONCLUSION

Although pathophysiology of urolithiasis, is multifactorial a positive family history may also affect the occurrence and the cause of urinary stone disease. In our study familial urolithiasis was observed in 15% of patients which is lower than world literature. This is a significant finding Sri Lanka being an island nation.

## REFERENCES

- [1] [Cheol P.](#), [Yun-S.H.](#), [Yong-J.K.](#), [Seok-J.Y.](#), [Sang-C. L.](#), [Wun-J. K.](#), Comparison of Metabolic Risk Factors in Urolithiasis Patients according to Family History. [Korean J Urol](#). 2010 Jan; 51(1): 50–53.
- [2] Magaret SP, Yair L. Urinary lithiasis: diagnosis and medical management. In: Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA, editors. *Campbell's urology*. 9th ed. Philadelphia: Saunders; 2007. pp. 1363–1392.
- [3] Sarada B, Satyanarayana U. Urinary composition in men and women and the risk of urolithiasis. *Clin Biochem*. 1991; 24: 487–490.
- [4] Leusmann DB., Blaschke R., Schmandt W. Results of 5,035 stone analyses: a contribution to epidemiology of urinary stone disease. *Scand J Urol Nephrol*. 1990;24:205–210. 5. Finlayson B. Symposium on renal lithiasis. Renal lithiasis in review. *Urol Clin North Am*. 1974; 1: 181–212.
- [5] Resnick M., Pridgen DB., Goodman HO. Genetic predisposition to formation of calcium oxalate renal calculi. *N Engl J Med*. 1968;278: 1313–1318.
- [6] Spivacow FR., Negri AL., del Valle EE., Calvino I., Fradinger E., Zanchetta JR. Metabolic risk factors in children with kidney stone disease. *Pediatr Nephrol*. 2008;23: 1129–1133.
- [7] Hakan HK., Faruk. BE., Kemal S. Family history in stone disease: how important is it for the onset of the disease and the incidence of recurrence?. April 2010, Volume 38, [Issue 2](#), pp 105–109
- [8] Stamatelou KK., Francis ME., Jones CA., Nyberg LM., Curhan GC. Time trends in reported prevalence of kidney stones in the United States: 1976–1994. *Kidney Int* 63:1817–1823
- [9] Skolarikos A., Alivizatos G., Rosette J., (2006) Extracorporeal shock wave lithotripsy 25 years later: complications and their prevention. *Eur Urol* 50:981–990
- [10] Unal D., Yeni E., Verit A., Karataş OF. (2005) Prognostic factors effecting on recurrence of urinary stone disease: a multivariate analysis of everyday patient parameters. *Int Urol Nephrol* 37(3):447–452
- [11] Ljunghall S., Danielson BG., Fellström B., Holmgren K., Johansson G., Wikström B. (1985) Family history of renal stones in recurrent stone patients. *Br J Urol* 57(4):04–370
- [12] Curhan GC., Willett WC., Rimm EB., Stampfer MJ. (1997) Family history and risk of kidney stones. *J Am Soc Nephrol* 8(10):1568–1573
- [13] Ahmadi Asr Badr Y., Hazhir S., Hasanzadeh K. (2007) Family history and age at the onset of upper urinary tract calculi. *Urol J* 4(3):142–145 Discussion 5–6

## AUTHORS

**First Author** – AUB Pethiyagoda, Department of Surgery, Faculty of Medicine, University of Peradeniya, Sri Lanka  
**Second Author** – K Pethiyagoda, Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka