



UROLITHIASIS ASSOCIATED WITH RENAL INSUFFICIENCY- FACTORS PREDICTING OUTCOME

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ABSTRACT

The prevalence of urolithiasis is increasing worldwide. The most life threatening complications of urolithiasis are renal failure and urosepsis. Both these complications can be prevented with early and meticulous management. In our study, we have evaluated various factors which influence the outcome of patients with urolithiasis and raised renal parameters, undergoing interventions. This prospective study, included 30 patients admitted to the Urology department in Chettinad Hospital And Research Institute, with urolithiasis and raised renal parameters, with no known previous chronic kidney disease. Participants were assessed preoperatively, intraoperatively and followed up post operatively, to identify the causes of renal insufficiency, interventions required, renal function improvement on follow up and the data has been analyzed. 43%(13) patients had urinary tract infection. 46% patients had comorbidities. 90% patients had complete stone clearance. Normal creatinine levels were reached in 21 patients(70%), while 9 patients showed mild to moderate elevation of creatinine values on 2 week follow up, with a decreasing trend. Most patients presenting with calculous related renal insufficiency experience improvement in kidney function with early and prompt intervention aimed at complete stone removal. Urinary tract infections and comorbidities pose additional challenges to management and prevention of recurrence of urolithiasis.

KEYWORDS : Urolithiasis, Renal Insufficiency, Creatinine.

INTRODUCTION

Due to a combination of obstruction, urinary tract infections, repeated surgeries, and pre-existing medical disorders, renal calculous disease can result in different degrees of kidney impairment.

Delays in referring patients to a urologist for appropriate management result in kidney failure for many people with kidney stones who are treated conservatively, either on their own or by a non-specialist. Many cases have exhibited this trend. The possibility of renal function recovery in situations where kidney tissue has atrophied is a matter of much debate.

Taking into account preoperative, intra-operative, and postoperative characteristics, we evaluated the factors influencing the outcomes of 30 patients with kidney stones and high renal parameters. We have assessed every facet and the outcomes of these individuals' interventions.

Objectives

To analyze the factors causing renal insufficiency in stone disease, To study the various interventions used in the treatment of urolithiasis, To assess the factors deciding the outcome of the procedures and to analyze the improvement of renal function post intervention.

METHODS

This prospective study, included 30 patients admitted to the Urology department in Chettinad Hospital And Research Institute, with urolithiasis and raised renal parameters, with no known previous chronic kidney disease. Participants were assessed preoperatively, intraoperatively and followed up post operatively, to identify the causes of renal insufficiency, interventions required, renal function improvement on follow up and the data has been analyzed.

RESULTS

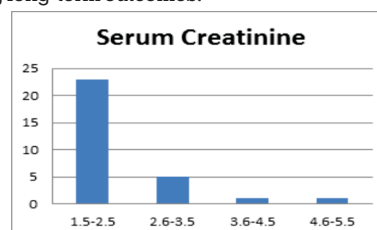
70% of patients included in the study were males and 30% female. 43%(13) patients had urinary tract infection. 90% patients had complete stone clearance. Normal creatinine levels were reached in 21 patients(70%), while 9 patients showed mild to moderate elevation of creatinine values on 2 week follow up, with a decreasing trend.

Five patients reported recurring urinary tract infections. Five patients showed stabilisation without further deterioration, while 25 patients (83.33%) showed improvement in renal function.

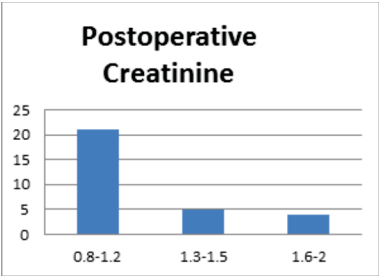
Several patients presented with comorbidities that can impact renal function. Hypertension was noted in 4 patients, while 8 had diabetes mellitus. Regarding interventions, nephrostomy drainage was required in 3 patients to relieve obstruction. One patient required dialysis prior to the surgical procedure. Postoperatively, the mean serum creatinine level was 1 mg/dL, suggesting preserved renal function in most cases after treatment. The choice of surgical procedure did not appear to significantly affect outcomes in this patient group.

CONCLUSION

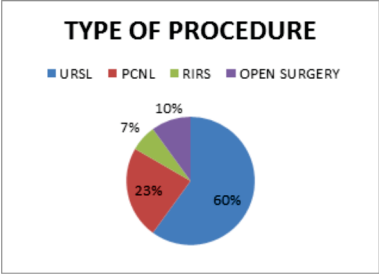
Most patients presenting with calculous-related renal insufficiency experience stabilization or improvement in kidney function with early aggressive intervention focused at complete stone removal. Urinary tract infection and comorbidities pose an extra risk factor for deterioration of renal function. Baseline serum creatinine serves as most important predictor of renal recovery potential. Stone burden characteristics significantly influence prognosis, with larger stones generating more extensive fibrotic reactions within the kidney. Complete stone clearance remains paramount, as residual fragments can serve as nidi for stone regrowth, causing recurrent obstruction and infection that further compromise renal function. Through judicious clinical management, including timely interventions and comprehensive follow-up protocols, both morbidity and mortality can be significantly reduced in urolithiasis patients with renal insufficiency, preserving kidney function and improving long-term outcomes.



Graph1: Pre-operative Serum Creatinine



Graph2: Post Operative Serum Creatinine.



Graph3: Type of Procedure Performed.

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