P077 Efficacy and safety of percutaneous nephrolithotomy in patients with chronic kidney disease

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Petkova K., Saltirov I.

Military Medical Academy, Dept. of Urology and Nephrology, Sofia, Bulgaria

Introduction & Objectives: Urolithiasis is often associated with obstruction, infection and large stone burden, which can impair renal function and lead to chronic kidney disease (CKD). CKD is a recognized risk factor for surgical complications and management of urolithiasis in patients with CKD may be challenging. The objective of this study is to compare the efficacy and safety of PCNL in patients with chronic kidney disease and normal or mildly impaired renal function.

Materials & Methods: A prospectively collected database of 1195 PCNL procedures carried out between May 2011 and May 2019 was analyzed. The glomerular filtration rate (eGFR) was estimated according to the Modification of Diet in Renal Disease formula and patients were divided in 2 groups according to eGFR. 894 patients (74.8%) had normal or mildly impaired renal function (eGFR ≥ 60 ml/min/1.73m^2) and 301 (25.2%) – had CKD (eGFR < 60 ml/min/1.73m^2). Preoperative characteristics, efficacy and safety were compared between groups.

Results: Patients with CKD were more likely to be female ($p<0.001$) and had a significantly higher incidence of comorbidities ($p<0.001$), preoperative anticoagulation therapy ($p=0.006$), solitary kidney ($p<0.001$), recurrent urolithiasis ($p<0.001$) and previous procedures for stone treatment ($p<0.001$). Mean stone size was larger for the CKD group (38.5±16.8 mm vs 35.5±16.6 mm, $p=0.008$) and patients with CKD had a significantly higher incidence of multiple and staghorn stones (60.8% vs 50.2%, $p=0.012$). Stone-free rate after a single procedure was lower for the CKD group, but not statistically significant (81.1% vs 83.9%, $p=0.256$). Overall postoperative complication rate was similar between groups (13.3% vs 14.1%, $p=0.727$). However, patients with CKD had a higher transfusion rate (2.7% vs 1.2%, $p=0.087$).

Conclusions: The results of this study suggest that PCNL is an effective and safe procedure in patients with chronic kidney disease. Although, CKD patients had larger and more complex stones and multiple comorbidities, these factors had no negative impact on PCNL outcomes compared to patients with normal or mildly impaired renal function.