

**Purpose:** Urinary stones are heterogenous but often grouped together. The incidence of CaP abundant ( $\geq 50\%$ ) stone and Brushite stone has increased during the past 45 years in Taiwan. We reported here clinical finding and the potential effects of patient demographics on stone composition. Our purpose was to inform urologists and highlight area that seem to deserve further research.

**Materials and Methods:** The first stone submitted by patients for analysis to the National Taiwan University Hospital (NTUH, 1961–2010) and National Cheng-Kung University Hospital (NCKUH, 2010–2016) were studied. Totally, 13672 stone analysis were examined at NTUH and 1061 at NCKUH, respectively. Stone were classified in the following order: majority calcium oxalate ( $\geq 50\%$ ), majority ( $\geq 50\%$ ) hydroxyapatite, any brushite, any metabolic stone (including uric acid and cysteine), and any struvite.

**Results:** Though the most common stone component is CaOx, but its incidence decreased from 82.1% (1991–2000) to 53.3% (2010–2016). The incidence of CaP ( $\text{Ca}_3(\text{PO}_4)_2$ ) increased from 7.1% (2001–2010) to 27.9% (2010–2016), while brushite increased from 0.2% (1961–1980) to 1.8% (2010–2016). Mean age for patients with CaP stone is  $56 \pm 16$  Y/O and male: female ratio = 1.7:1; whereas mean age is  $48 \pm 18$  Y/O and male: female ratio is 3.7:1 for brushite stone patients. Patient with CaP abundant stone has a larger stone size ( $747.5 \pm 135.8 \text{ mm}^2$ ) and lower eGFR ( $65.4 \pm 18.9 \text{ mL/min/1.73m}^2$ ) than patients with CaOx stone ( $73.7 \pm 66.4 \text{ mm}^2$ , and  $85.9 \pm 31.8 \text{ mL/min/1.73m}^2$ , respectively). Patient with CaP stone has a lower stone free rate and received more surgical procedures than CaOx stone disease (35.9% vs. 64%; 1.24 vs. 0.92, respectively). Patient with CaP stones has normal 24h urine Ca and uric acid and lower 24h urine Mg than CaOx stones.

**Conclusion:** CaP has risen for recent four decades. Gender of CaP stone did not differ in this cohort, but they had decreased eGFR and larger stone size and received more procedures than CaOx. High urine pH (6.8) and low 24h urine Mg was the main metabolic abnormality.

#### PD6-2:

#### PRESSURE COMPRESSION OF THE ACCESS TRACT FOR TUBELESS PERCUTANEOUS NEPHROLITHOTOMY

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**Purpose:** To evaluate the efficacy of access tract tamponade with oxidized regenerated cellulose (Surgicele) for tubeless PCNL.

**Materials and Methods:** Since April 2013 to June 2014, 216 PCNL was performed at our hospital. After the end of stone extraction, the access tract was cauterized and an 8F Foley catheter was inserted to the renal pelvis through the working sheath then inflated and gently retracted. The working sheath was withdrawn to the renal capsule and the access tract of the renal parenchyma was packed with Surgicele and compressed with small sized dilators through the working sheath for 5 minutes. A bloodless tract usually could be obtained in nearly every patient.

**Results:** Of the 216 patients, 129 patients were male and 77 patients were female. The age of these 216 patients ranged from 26 to 82 (mean 56.0) years old. The characteristics of the stones were renal stones in 147 patients (36 patients had complete staghorn stones), ureteral stones in 47 patients and kidney with ureteral stones in 23 patients. The average stone size was 3.6 (0.9–10.5) cm and the average operation time was 80.5 (30–200) minutes. The target stones had all been removed and the overall stone free rate was 73.6%. The postoperative blood transfusion rate was 1.3% (3 patients). Postoperative fever was noted in 23 patients (10.6%) and sepsis was noted in 3 patients (1.4%). The average post operative hospital stay was 3.2 (2–8) days.

**Conclusion:** Pressure compression is an alternative method to minimized hemorrhage complication for tubeless PCNL.

#### PD6-3:

#### SHOCK WAVE LITHOTRIPSY FOR RENAL STONES IS NOT ASSOCIATED WITH DEVELOPMENT OF HYPERTENSION IN CHINESE/TAIWANESE POPULATION

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**Purpose:** Shock wave lithotripsy (SWL) is highly available due to its accessible of use, noninvasive nature, and highly effective in fragmentation the stones. Some reports showed the SWL may develop new onset of hypertension. The association between SWL and development of new hypertension has become a matter of debate due to controversial data have become available. We aimed to determine whether the SWL increased the development of hypertension with controls matched for age, gender, obesity, diabetes mellitus and hyperlipidemia by using the Taiwan National Health Insurance (NHI) database.

**Materials and Methods:** Data sourced from the “Longitudinal Health Insurance Database” (LHID200) of our country (Taiwan, Republic of China) compiled by the NHI from 1996 to 2010. The LHID200 include medical records for 1,000,000 individuals randomly sampled from all enrollers in NHI. Cases of renal stones were defined by the ICD-9 diagnostic codes as 592. Patients with newly onset of hypertension was defined as ICD-9 diagnostic codes 401 to 405 with hypertension medication. For the study group, we only include the renal patients underwent SWL, patients with diagnosis of renal stone who underwent either percutaneous nephrolithotomy (PCNL; procedure code: 76016B) or ureterorenoscopic lithotripsy (URSL; procedure code: 77026B, 77027B, 77028B) were precluded in our cohort. For control group, we included the patients with renal stones diagnosed but did not receive the SWL, PCNL and URSL. The Kaplan-Meier analysis was applied to estimate the effect of SWL on hypertension free rates.

**Results:** We included 464 patients with SWL and 1,160 patients with comparison. There were no difference in age, gender, urbanization, monthly income, and co-morbidities between the two groups. There was no difference between the incidence of newly hypertension between SWL and comparison group. The incidence rate of newly hypertension during the follow up period was 30.3 (95% CI: 0.69–1.17) per 1,000 person-years and 30.2 (95% CI: 1.13–1.95) per 1,000 person-years for the SWL and comparison cohort, respectively. Interestingly, the average newly hypertension onset time was faster in the SWL groups than those in the control groups

**Conclusion:** On the basis of our results, SWL is a safe procedure for the nephrolithiasis patients under the proper management.

#### PD6-4:

#### THE LONG TERM OUTCOMES OF PATIENTS WITH RESIDUAL STONES ARE NOT INFERIOR TO THOSE WITH STONE FREE AFTER PERCUTANEOUS NEPHROLITHOTOMY

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**Purpose:** To investigate the long term outcomes of residual stones after percutaneous nephrolithotomy (PCNL) stone.

**Materials and Methods:** One hundred and twenty four PCNLs performed at our hospital between Jan. 2008 and Dec. 2010 with related image follow up for at least 4 years were enrolled in this study. The outcomes we reviewed included stone progression, pyelonephritis, renal function deterioration and subsequent stone related procedures. We compared the outcomes of PCNLs with residual stones (group 1) to those without residual stones (group 2).

**Results:** The stone progression rates in two groups were 37.5% and 53.3%. ( $p = 0.125$ ) The pyelonephritis rates in two groups were 0% and 3.3%. ( $p = 0.301$ ) The renal function deterioration rates in two groups were 3.1% and 0%. ( $p = 0.089$ ) The rates of subsequent stone related procedures in two groups were 53.1% and 54.3%. ( $p = 0.905$ ) The subsequent ESWLs rates in two groups were 43.8% and 32.6%. ( $p = 0.257$ ) The subsequent URSLs rates in two groups were 3.1% and 19.6%. ( $p = 0.026$ ). The subsequent PCNLs rates in two groups were 15.6% and 13.0%. ( $p = 0.715$ )

**Conclusion:** The long term outcomes of percutaneous nephrolithotomy (PCNL) with or without residual stone were not significantly different in our study.