

before RFA and 22 been proved RCC. The number of RFA needle treatment were significantly correlated to PADUA score. 13 patients were under local anesthesia, the other were under IVGA by anesthesiologist. Only one patient presented mild pneumothorax after RFA without intervention treatment. Renal function deterioration after procedure did not reveal clinical significance. Tumor recurrence was recognized by CT scan in 3 patients during followup, who repeated RFA treatment without recurrence.

**Conclusion:** For carefully selected patients, RFA represent a less invasive alternative associated with less morbidity and fewer complications and a promising treatment compared with partial nephrectomy. However, the long-term efficacy of these approaches remains to be established.

## LUTS

### NDP090:

#### THE PROTECTIVE EFFECT OF EPIGALLOECATECHIN GALLATE ON OXIDATIVE STRESS TRIGGERED THROUGH MITOCHONDRIA AND ENDOPLASMIC RETICULUM IN A METABOLIC SYNDROME-INDUCED BLADDER OVERACTIVITY RAT MODEL

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**Purpose:** Long-term metabolic syndrome develops lower urinary tract symptoms. The pathophysiology mechanism underlying the metabolic syndrome associated with bladder dysfunction is still not clear. The major aim of our study is to elucidate metabolic syndrome-induced bladder dysfunction in association with oxidative stress triggered through mitochondria and endoplasmic reticulum (ER) in a metabolic syndrome-induced bladder overactivity rat model. The other aim of the present study is to elucidate the protective effect of epigallocatechin gallate (EGCG) on metabolic syndrome-induced bladder overactivity.

**Materials and Methods:** Female Sprague-Dawley rats are divided into control group, high fat high sugar (HFHS) diet group, HFHS diet with bilateral ovariectomy (OVX) (HFHS+OVX) group, HFHS diet with bilateral OVX and EGCG treatment (HFHS+OVX+EGCG) group, and HFHS diet with EGCG (HFHS+EGCG) group, respectively. Cystometry (CMG) and micturition frequency/volume studies were recorded for bladder voiding function. The terminal deoxynucleotidyl transferase dUTP nick-end labeling (TUNEL) assay was performed to evaluate the distribution of apoptotic cells. Western blot was carried out to examine the expressions of interstitial fibrosis markers, muscarinic receptors (M2 and M3), oxidative stress markers, endoplasmic reticulum stress markers (GRP78, CHOP, caspase-12), apoptosis-associated proteins, and the subunits of mitochondrial respiratory complexes. The antioxidant enzymes, including superoxide dismutase and catalase, were investigated by real-time PCR.

**Results:** The HFHS diet with OVX treated rats displayed bladder overactivity. Bladder contractility was considerably decreased in HFHS with OVX group in response to electric field, carbachol, and KCl stimulation as compared with those in the control group. Such bladder dysfunction was accompanied by a significant increase in oxidative stress markers, ER-associated oxidative stress proteins, apoptosis-associated proteins, and the subunits of mitochondrial respiratory complexes. Conversely, the mRNA expressions of antioxidant enzymes Mn-SOD, Cu/Zn-SOD and catalase were also decreased after long-term HFHS treatment with/without OVX.

However, EGCG treatment can improve the extent of oxidative stress and lessen bladder hyperactivity.

**Conclusion:** HFHS combined with OVX enhanced the generation of oxidative stress mediated through mitochondria- and ER-dependent pathways, and consequently attributed to bladder apoptosis, whereas EGCG treatment could eliminate these oxidative stress and reverse bladder dysfunctions.

### NDP091:

#### FUNCTIONAL BLADDER CAPACITY CORRELATES TO SEVERITY OF SYMPTOMS IN PATIENTS WITH INTERSTITIAL CYSTITIS/PAINFUL BLADDER SYNDROME

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**Purpose:** To investigate the correlation between functional bladder capacity and the pain scale, and clinical symptoms in patients with interstitial cystitis/painful bladder syndrome (IC/PBS).

**Materials and Methods:** A retrospective study of 30 patients with symptoms of IC/PBS were included. Functional bladder capacity was detected according to 3-day voiding diary. Bladder hydrodistention were performed under intravenous sedation or general anesthesia. A self-administered questionnaire containing pain and urgency visual analogue scale (VAS), O'Leary-Sant Symptom and Problem Indexes (including Interstitial Cystitis Symptoms Index (ICSI) and Interstitial Cystitis Problem Index (ICPI)) were obtained. The effects of hydrodistention were evaluated by Global Response Assessment (GRA). A two-sample t test was performed to identify the differences of continuous variables between the two groups with functional bladder capacity of > 350ml and ≤ 350ml, and simple logistic regression was applied to assess functional bladder capacity with pain scale, symptom score, age, and bladder capacity in hydrodistention. The p value <0.05 was considered to be statistically significant. Statistical analyses were performed using SPSS 20.0 statistics software (SPSS Inc., Chicago, IL).

**Results:** The baseline character has no significant difference between two groups (functional bladder capacity of > 350ml and ≤ 350ml) in age, pain and urgency VAS, ICSI, ICPI, or post-voiding residual urine amount. There is a trend of higher pain scale and symptom score as functional bladder capacity decreased. Furthermore, mean urgency in 3-day voiding diary, bladder capacity on hydrodistention, and GRA showed statistically significant difference between two groups.

**Conclusion:** Functional bladder capacity correlates with pain scale and symptom scores. The group of functional bladder capacity > 350ml has larger bladder capacity in hydrodistention and significantly symptoms improvement after hydrodistension.

## Urolithiasis

### NDP092:

#### CHANGE OF OXIDATIVE STRESS BEFORE AND AFTER ESWL FOR PATIENTS WITH URETERAL STONE

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**Purpose:** To evaluate the change of oxidative stress before and after extracorporeal shock wave lithotripsy (ESWL) for patients with ureteral stone.

**Materials and methods:** Forty patients with ureteral stone and receiving ESWL were recruited in this study. The parameters for comparison included severity of hydronephrosis (mild, moderate and severe), stone size, shock wave numbers and KV, age, and body mass index (BMI). The oxidative stress and antioxidant capacity were evaluated by measuring malondialdehyde (MDA), mitochondrial DNA (mtDNA) copy number and total capacity of antioxidants (TOA) in the blood. The data were correlated with serum creatinine, which were measured before and immediately after ESWL in all patients. Malondialdehyde (MDA), one of the lipid peroxidation products, in blood plasma was measured by reaction with a chromogenic reagent

nmethyl-2-phenylindole (NMPI) to form an intensely colored carbocyanine dye with a maximum absorption at 586 nm by using the MDA-586 kit (Oxis Research, Portland, OR, USA). An MDA standard curve was established by using the MDA samples at the concentration range of 0–50  $\mu$ M. The copy number of mtDNA in leukocytes was measured by a real-time PCR technique using the LightCycler FastStart DNA Master SRBR Green I according to a method described previously. The relative copy number of mtDNA was measured by normalization of the crossing points (Cp) in quantitative PCR curves between the ND1 and 18S rRNA genes using the RelQuant software (Roche Applied Sciences, Mannheim, Germany). The TOA in serum was performed by the PAO kit from Japan Institute for the Control of Aging (Nikken SEIL Co., Fukuroi, Japan) according to the manufacturer's instruction. The antioxidant power of the sample was estimated by multiplying the corresponding uric acid concentration by 2189.

**Results:** Serum creatinine increased ( $1.22 \pm 0.23$  vs.  $1.43 \pm 0.25$  mg/dL), MDA ( $16.3 \pm 2.9$  vs.  $24.1 \pm 6.3$  M) was increased and TOA ( $159.7 \pm 55.2$  vs.  $78.6 \pm 34.3$  mM) decreased in all the patients immediately after ESWL compared with the data before ESWL. Thirteen patients with larger ureteral stone (>1cm, group A) had significantly higher MDA ( $24.9 \pm 2.8$  vs.  $22.1 \pm 5.1$  M), lower mtDNA copy number ( $0.24 \pm 0.12$  vs.  $0.34 \pm 0.12$ ), and lower TOA ( $61.7 \pm 29.2$  vs.  $76.4 \pm 32.5$  mM) immediately after ESWL than did those (27 patients) with smaller stone (<1cm, group B). By multiple regression, larger ureteral stone, higher shock wave numbers and KV were associated with higher oxidative stress and lower antioxidant capacity immediately after ESWL. Besides, negative correlation was found between oxidative stress and renal function immediately after ESWL.

**Conclusion:** An increase of MDA and decrease of TOA in blood in all the patients immediately after ESWL, which might induce renal damage. Moreover, the oxidative stress levels in blood was higher and antioxidant capacity was lower in patients who had larger ureteral stone (>1cm), severe hydronephrosis and receive higher shock wave numbers (>4000) and KV (>17).

#### NDP093: THE DIAGNOSIS AND MANAGEMENT OF UROLITHIASIS IN NORTHERN MALAYSIA

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**Purpose:** This study is to introduce the presently clinical practice in regarding diagnosis tool and management of the urolithiasis problems in northern Malaysia single hospital urology department.

**Materials and Methods:** Total 514 cases of urolithiasis of ureter were enrolled in this study during June, 2011 to February 2015. Presenting S/S including: renal colic, hematuria, dysuria, etc. Average patient's age were 48.59 years old (15 years old to 88 years old). Male to female ratio were 379: 135. Mostly Renal Ultrasound and CT scan without enhancement and few KUB were used for diagnosis. Concerning lab tests and urine tests were done. All patient received ureteroscopic stone extraction by lithoclast with or without JJ stenting (Fr 6 X 26/24 cm JJ stent) under spinal anesthesia or general anesthesia.

**Results:** All the imaging study revealed obstructive hydronephrosis while obstructive uropathy was noted in 101 cases. Lab data revealed hyperuricemia in 211 cases. Urine test revealed hematuria in 244 cases. Left side ureter stone was noted in 253 cases while right side stone were 298 cases whereas bilateral side stones were 20 cases. 6 cases were ureteropelvic junction stones whereas 10 cases had concomitantly bladder stones (a 80 years old male received cystolithotomy for huge bladder stone 4 cm X 3 cm and right URSM + JJ stent concomitantly) and 1 had penile urethral stone whom received cystoscopy lithotripsy simultaneously. 2 cases had incidentally noted of papillary bladder TCC and bladder papilloma whom received biopsy with close surveillance. Average hospitalization was 1-2 days with minimal complication. Foley was kept for 1 day. Average JJ stent was left for 1-2 weeks whereas 1 month for renal pelvic stone.

**Conclusion:** Idiopathic uric acid nephrolithiasis appears to be increasing in prevalence as in our urolithiasis cases. Ultrasound is mostly used for the first line diagnostic tool in detecting nephrolithiasis or obstructive hydronephrosis. While CT scan without enhancement is more sensitive to detect ureter stone especially uric acid stone (radiolucent) without renal toxicity consequences. Further, CT scan is cheap (about NT 3500), fast and

convenient. While it has long been known that low urine pH is associated with uric acid stones, alkalization treatment will provide benefit in mostly cases.

#### NDP094: THE DIVERSITY OF THE ANATOMICAL STRUCTURE OF THE INFUNDIBULUM OF RENAL DIVERTICULUM—THE EXPERIENCE OF FLEXIBLE URETERORENOSCOPIC EXAM

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**Purpose:** To report on our result of examining the anatomical structure of the infundibulum of renal diverticulum during treatment of renal diverticular stone.

**Materials and Methods:** A total of 16 cases of renal diverticular stone as diagnosed by intravenous urography. The female to male ratio is 12:4. The lesion was more at the right side, right to left ratio is 9:7. The age ranges from 19-58 years old. All patients underwent flexible ureterorenoscopic examination and treatment of renal diverticular stone. The scope used is a Olympus type V flexible ureteroscope with magnification power of 50x. The whole renal pelvicalceal system was examined to identify the location and anatomical structure of the opening of the renal diverticulum. All procedures were performed under the assistance of a mobile C arm fluoroscope. If the opening is not found by flexible ureterorenoscopy, retrograde injection of contrast medium was performed to help identify the opening. If the opening is noted, it was enlarged by holmium YAG laser incision. The diverticular stones were crushed by laser then stone fragments were removed by stone basket.

**Results:** The opening of renal diverticulum was found in 14 cases while completely obliteration of opening was noted in 2 cases. In 12 cases the opening is pinpoint like which allows only a 200 micron laser fiber to pass it. In one case, the opening was constituted by a broad semi-transparent membrane. The last case has a wide and patent opening which allows the type V Olympus flexible ureterorenoscope to pass it though preoperative intravenous urography could not show the opening. Stone free rate was 91.6% in the 12 cases whose opening of renal diverticulum could be found.

**Conclusion:** Preoperative intravenous urography cannot demonstrate the anatomical structure of the renal diverticular opening. The anatomical structure is diverse rather than uniform. Flexible ureterorenoscopy is a useful tool in both identifying the structure of renal diverticular opening and treatment of renal diverticular stone.

#### NDP095: FACTORS INFLUENCING THE OUTCOME OF EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY FOR RENAL STONES AND URETERAL STONES: ONE HOSPITAL EXPERIENCE

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**Purpose:** Extracorporeal shock wave lithotripsy (ESWL) is a widespread method to manage both renal stones and ureteral stones. We investigated the patients who received ESWL in our hospital to find out which factors influenced the outcome.

**Materials and Methods:** From January, 2014 to June, 2014, we retrospectively reviewed the chart of 437 patients who underwent ESWL in our hospital. These patients were divided to renal stone group and ureteral stone group. We analyzed the patient character (such as age, sex, height, weight, BMI, and serum creatinine level) and the stone character (stone size, position, the hydronephrosis status detected by renal ultrasound, the pre-operative ureter stent placement) Success for stone-free was defined as <0.4 mm in follow up KUB plain film.

**Results:** The success rates were 49.6% and 60% in renal stone group and ureteral stone group. In univariate analysis of the renal stone group, we can find that only stone size, the pre-operative hydronephrosis status and the renal stone location showed statistically significant to influence the