

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

Yung-Shun Juan<sup>1,2,3,4</sup>, Yi-Lun Lee<sup>4,5</sup>, Mei-Chin Lu<sup>6,7</sup>, Wen-Jeng Wu<sup>1,2,3</sup>, Mei-Yu Jang<sup>3</sup>, Wan-Ting Ho<sup>1</sup>, Keh-Min Liu<sup>8</sup>, Shu-Mien Chuang<sup>9</sup>. <sup>1</sup>Department of Urology, Kaohsiung, Taiwan; <sup>2</sup>Department of Urology, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; <sup>3</sup>Department of Urology, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung, Taiwan; <sup>4</sup>Graduate Institute of Medical Science, Kaohsiung, Taiwan; <sup>5</sup>Department of Urology, Chi-Shan Hospital, Department of Health, Executive Yuan, Kaohsiung, Taiwan; <sup>6</sup>Graduate Institute of Marine Biotechnology, National Dong Hwa University, Pingtung 944, Taiwan; <sup>7</sup>National Museum of Marine Biology & Aquarium, Pingtung 944, Taiwan; <sup>8</sup>Department of Anatomy, College of Medicine, Kaohsiung, Taiwan; <sup>9</sup>Translational Research Center, Cancer Center, Kaohsiung Medical University, Kaohsiung, Taiwan

**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

Hui-Ying Liu, Yao-Chi Chuang. Division of Urology, Kaohsiung Chang Gung Memorial Hospital, Chang Gung University, College of Medicine, Taiwan

**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 hydrodistention.

## Urolithiasis

### NDP092:

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

Saint Shiou-Sheng Chen<sup>1,2</sup>, Allen W. Chiu<sup>1,2</sup>. <sup>1</sup>Department of Urology, National Yang-Ming University School of Medicine; <sup>2</sup>Division of Urology, Taipei City Hospital Renai Branch, Taipei, Taiwan

**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