

**PD4-6:
ALLYL ISOTHIOCYANATE INDUCES PROTECTIVE AUTOPHAGY THROUGH UP-REGULATION OF BECLIN-1 IN HUMAN PROSTATE CANCER CELLS BUT NOT IN NORMAL CELLS**

Hung-En Chen^{1,a}, Ji-Fan Lin^{2,a}, Te-Fu Tsai^{1,4}, Yi-Chia Lin^{1,4}, Kuang-Yu Chou^{1,4}, Thomas I-Sheng Hwang^{1,3,4}. ¹Department of Urology, Shin Kong Wu Ho-Su Memorial Hospital, Taiwan; ²Central Laboratory, Shin Kong Wu Ho-Su Memorial Hospital, Taiwan; ³School of Medicine, Taipei Medical University, Taiwan; ⁴School of Medicine, Fu-jen Catholic University, Taipei, Taiwan

Purpose: Allyl isothiocyanate (AITC) is one of the most widely studied members of the ITC family which are enriched in cruciferous vegetables. It has recently been demonstrated to inhibit survival of human prostate cancer cells while having minimal effects on a normal prostate epithelial cell line. In our previous studies, we showed that AITC induces reactive oxygen species (ROS)-mediated apoptosis and protective autophagy. Here, we investigate the underlying mechanism of AITC-induced autophagy in human prostate cancer cells.

Materials and Methods: Total protein from androgen-sensitive (Rv1) and -refractory (PC3) human prostate cancer cells treated with AITC for 24 hours were extracted and subjected to the detection of the activation status of mTOR, AMPK, ERK, JNK and p-38 (MAPK) that are reported to be related to autophagy induction. Protein level of beclin-1 and Bcl-2 was also detected to determine the involvement of autophagy/apoptosis switch. The small chemical drugs, PD184352, Dorsomorphin, and SP600125 were used to specifically inhibit AITC-activated ERK, AMPK and JNK, respectively. Inhibition of AITC-induced ROS generation was performed by pretreatment of N-acetylcysteine (NAC).

Results: ERK activation was observed only in Rv1 cells, while AMPK, and JNK activation was observed in both Rv1 and PC3 cells upon AITC treatment. However, pre-treatment of chemical inhibitors specific for either ERK, AMPK, or JNK did not attenuate AITC-induced autophagy that was judged from the increased LC3-II processing. Therefore, AITC-induced autophagy was independent of these cell signaling pathways. We next detected the expression of beclin-1/Bcl-2 that had been proved to be an important switch in cell fate determination regarding to autophagy and apoptosis. We discovered a significantly increased level of beclin-1/Bcl-2 in AITC-treated prostate cancer cells. Pre-treatment of NAC decreased the expression level of beclin-1 in AITC-treated cells, this indicates that beclin-1 which is a downstream target of ROS was responsible for the autophagy induction in AITC-treated prostate cancer cells.

Conclusion: We for the first time provide evidence that AITC induces ROS-mediated protective autophagy through the up-regulation of beclin-1 expression regardless of androgen sensitivity in human prostate cancer cells. We also found that ERK, AMPK and JNK activation that is independent of autophagy induction in cells upon AITC treatment. The signaling pathways which lead to up-regulation of beclin-1 in AITC-treated cells remain further investigation.

**Podium-5
Laparoscopy**

**PD5-1:
PREDICTION OF ADHERENT PERINEPHRIC FAT IN ROBOTIC-ASSISTED PARTIAL NEPHRECTOMY**

Yun-Chu Chang¹, Wei-Ming Cheng¹, Hsiao-Jen Chung^{1,2}, Alex T.L. Lin^{1,2}, Kuang-Kuo Chen^{1,2}. ¹Department of Urology, Taipei Veterans General Hospital, Taiwan; ²Department of Urology, School of Medicine, National Yang-Ming University, Taiwan

Purpose: Robotic-assisted partial nephrectomy (RAPN) is a challenging procedure, especially for young urologists with limited experiences. Several image-based scoring systems have been proposed to predict the anatomical complexity of the operation; however, adhesive perirenal fat

(APF) is also an important patient-specific factor that would increase the difficulty in mobilization of the kidney as well as isolation of the renal mass in RAPN. It is hardly predicted by these well-known scoring systems. In the present study, we tried to find out the preoperative predictive factors for APF in patients undergoing RAPN.

Materials and Methods: We prospectively collected patients undergoing RAPN by one single experienced urologist in our institutes from August, 2013 to October, 2014. All the procedures were standardized. The presence of APF, the duration and the difficulty of kidney mobilization / tumor isolation were judged by another urologist independently. Presence of fat stranding, thickness and Housefield Unit (HU) of medial, lateral, anterior, and posterior aspects of perirenal fat at the same side of the renal mass at the level of renal vein on preoperative noncontrast-enhanced transverse CT images, as well as the recently proposed Mayo adhesive probability score (MAPS = degree of fat stranding + thickness of posterior perirenal fat) and perirenal fat density (PFD = total HU / surface area) were recorded by a third urologist who was blind to the surgical details. These image-based factors, along with other demographic data including age at surgery, sex, body weight index (BMI), preoperative biochemical profiles, and comorbidities, were correlated with perioperative surgical outcomes, including presence of APF, operation time, surgical difficulty, estimated blood loss, conversion to open surgery, length of hospital stay, and early complications within 30 days. Fisher's exact test and Mann-Whitney test were used for univariate analysis while stepwise correlation was used for multivariate analysis. *p* value less than 0.05 was defined as statistical significance.

Results: A total of consecutive 42 patients were included. The mean age at surgery was 58.2 ± 13.1 years and mean BMI was 25.3 ± 3.9 kg/m². 17 patients were female (40.4%) and 18 (42.9%) patients had their tumor at right side. APF was observed in 11 patients (26.0%), and moderate to severe difficulty in kidney mobilization / tumor isolation was noticed in 20 (47.6%) patients. The mean time needed for this step was 50.1 ± 38.5 minutes. The presence of APF was significantly associated with the kidney mobilization / tumor isolation time (83.7 ± 43.0 minutes vs. 38.1 ± 25.6 minutes, *p* = 0.01) and degree of difficulty (for moderate to severe difficulty, 11 (100%) vs. 9 (29%), *p* < 0.001). On univariate analysis, presence of comorbid type 2 diabetes mellitus (5 out of 11 vs. 2 out of 31, *p* = 0.009), presence of diffuse fat stranding (2 out of 11 vs. 0 out of 31, *p* = 0.02), level of preoperative creatinine (OR = 17.9, *p* = 0.036), medial fat thickness (OR = 3.9, *p* = 0.003), and MAPS (*p* = 0.005), were significantly associated with APF. Other factors were failed to show any significance.

Conclusion: APF was an important patient-specific factor that would impose adverse effect on time and difficulty of kidney mobilization and tumor isolation. Image-based MAPS could be a preoperative predictor for the presence of APF during RAPN in our study.

**PD5-2:
LAPAROENDOSCOPIC SINGLE SITE (LESS) ADRENALECTOMY FOR ADRENAL TUMORS**

Hsiang Ying Lee^{1,2}, Ching-Chia Li^{1,2}, Hsin-Chih Yeh^{1,2}, Chia-Chun Tsai^{1,2}, Kuang-Shun Chueh^{1,2}, Yii-her Chou², Chun-Nung Huang², Wen-Jeng Wu^{2,3}. ¹Department of Urology, Kaohsiung Municipal Ta-Tung Hospital, Kaohsiung, Taiwan; ²Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; ³Department of Urology, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung, Taiwan

Purpose: Laparoendoscopic single site (LESS) adrenalectomy has become a feasible choice for adrenal lesions and is a substitute to conventional open adrenalectomy. This study is to describe the characteristics of adrenal tumor after LESS retroperitoneal adrenalectomy in our experience.

Materials and Methods: Between 2010 to 2014, 87 adrenalectomies were performed. Of all patients, 79 received a LESS retroperitoneal approach and were done by one surgeon. We retrospectively review these patients and analyze the characteristics of adrenal tumors. The incision wound is below the 12th rib in the posterior axillary line and is about 2.3 to 3.2 cm length. A 5 mm 30° rigid laparoscope and other conventional laparoscopic instruments are manipulated via a commercial port (LagiPort). After operation, no drain tube is placed.

^a These authors contributed equally to this work.

Results: Among 79 adrenal tumors receiving operation, Conn's disease is the most common disease (60% Conn's disease, 22% non-functional, 6% Cushing disease, 4% Pheochromocytoma, 3% malignancy, respectively). In our finding, left side adrenal tumors (60.76%) are more than right side tumors (39.24%). Mean operating time was 116 min and mean blood loss was 67ml. Mean hospital stay was 5 days. The postoperative course was uneventful without complications.

Conclusion: LESS retroperitoneal adrenalectomy is a safe and satisfied procedure for patients with adrenal tumors. Besides, we discovered the different distribution of adrenal disease between Asian and Western world. Conn's disease takes more than half of adrenal tumors in Taiwanese population.

**PD5-3:
COMPARISON WITH OPEN CONVENTIONAL LAPAROSCOPIC AND ROBOTIC ASSISTED LAPAROSCOPIC RADICAL CYSTECTOMY WITH URINARY DIVERSION METHOD— 3 YEARS EXPERIENCE OF SINGLE TEAM**

Cheng-Kuang Yang, Yen-Chuan Ou. Divisions of Urology, Department of Surgery, Taichung Veterans General Hospital, Taichung, Taiwan

Purpose: Open radical cystectomy with urinary diversion is gold standard management for invasive bladder cancer. Minimal invasive radical cystectomy had been developed for more than ten years. We describe our 3 years experience of conventional laparoscopic radical cystectomy(LRC) with extracorporeal urinary diversion via 3cm wound incisions. We performed robotic assisted laparoscopic radical cystectomy (RaLRC) with intracorporeal urinary diversion in the past 12 months. In this study, We aim to compare the perioperative outcomes of these two different minimal-invasive approaches to open radical cystectomy

Materials and Methods: From January 2011 to Dec 2014, 10 open cystectomy, 28 consecutive patients underwent conventional laparoscopic radical cystectomy with extracorporeal urinary diversion, 17 patients underwent robotic assisted laparoscopic radical cystectomy (RaLRC) with 8 cases of intracorporeal and 9 cases of extracorporeal urinary diversion by a single surgical team. Perioperative outcome include operative time (lymph node dissection with cystectomy time, urinary diversion time), blood loss, time to return to diet, one month complication rate and length of hospital stay. Oncological outcome included dissected lymph node numbers, LN positive rate, positive surgical margin and 1 year disease free survival rate.

Results: There is no significant differences in estimated blood loss, blood transfusion rate and ileus rate between these two minimal invasive groups, but greater in open cystectomy group. Besides there were no significant differences in time to return to diet, pain score, pathological stage and positive surgical margin rate between three groups. Similar operative time for lymph node dissection with radical cystectomy in two minimal invasive groups. (Mean time: 164.6 minutes for LRC and 148.2 for RaLRC) Shorter operative time for extracorporeal urinary diversion (Extracorporeal ileal conduit : 72.3 minutes, Extracorporeal neobladder : 108.7 minutes, intracorporeal ileal conduit : 175.8 minutes and intracorporeal neobladder : 249.3 minutes) Average dissected LN numbers are 24.6 in ORC, 34.5 in LRC and 42.8 in RaLRC. There was no perioperative bowel injury in these three groups. No ureteral complication in extracorporeal urinary diversion group, but 3 ureteral complication with urine leakage in intracorporeal group. The 1-year disease free survival rate was 92.7% in the LRC group and the 1-year overall survival rates were both 100%.

Conclusion: Our experience shows that minimal invasive radical cystectomy with extracorporeal urinary diversion via small incisions is a safe and feasible surgical technique with acceptable perioperative results. RaLRC seemed more precisely in lymph node dissection and cystectomies, but long operative time and more urinary complications in intracorporeal urinary diversion. We try to step over the learning curve of intracorporeal urinary diversion, besides more convincing results with a longer follow-up period and large number of cases are necessary to validate our findings.

**PD5-4:
SHOULD WE SHIFT TO RETZIUS-PRESERVING ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY?**

Chia-yen Lin, Yen-chuan Ou, Cheng-kuang Yang. Division of Urology, Department of Surgery, Taichung Veterans General Hospital, Taiwan

Purpose: Some studies reported a comparable oncological outcome and better early continence rate of Retzius-preserving robotic assisted laparoscopic radical prostatectomy (RALP). We want to compare the early perioperative and continence outcome. And we are also eager to know if the learning curve of Retzius-preserving surgery would compromise the outcome or not?

Materials and Methods: We selected patient with organ-confined prostate cancer (\leq cT2c), PSA \leq 40, Gleason score of biopsy \leq 8, prostate volume \leq 50 ml and BMI $<$ 35. We plan to collect consecutive 50 cases from February, 2015. We design a case control matching study with 25 cases of each Retzius-preserving RALP and conventional RALP group. Postoperative parameter and early continence result was compared. This is our early result of original study design.

Results: From February 1, 2015 to March 17, 2015, a total consecutive 21 cases of RALP were evaluated. Eight of them underwent Retzius-preserving RALP. There is no statistical difference of preoperative characteristics. There were no significant differences in mean length of hospital stay, intra- and postoperative complication rates, pathological stage of disease, Gleason scores, tumour volumes and positive surgical margins between the conventional RALP and Retzius-sparing RALP groups. However, console time, Vesicourethral anastomosis time and estimated blood loss Console time were longer for Retzius-sparing RALP. There is no significant difference of early continence at 4 weeks between.

Conclusion: Based on the early result of this study, Retzius-preserving RALP is a feasible and safe treatment choice for localized prostate cancer. Both console time and estimated blood loss are favoring to conventional RALP. Further study and accumulation of experience are needed for final conclusion.

**PD5-5:
“PREVENTION AND MANAGEMENT OF COMPLICATIONS DURING ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY FROM COMPREHENSIVE PLANNING : EXPERIENCE OF A SINGLE SURGEON OF 1000 CASES”**

Yen-Chuan Ou M.D., Ph.D.¹, Chun-Kuang Yang M.D.¹, Kuang-Hsi Chang², John Wang M.D.³, Siu-Wan Hung M.D.⁴. ¹Division of Urology, Department of Surgery, Taichung Veterans General Hospital, Taichung, Taiwan; ²Department of Research, Taichung Veterans General Hospital, Taichung, Taiwan; ³Department of Pathology, Taichung Veterans General Hospital, Taichung, Taiwan; ⁴Department of Radiation, Taichung Veterans General Hospital, Taichung, Taiwan

Purpose: To report the complications of 1000 cases of robotic-assisted laparoscopic radical prostatectomy (RALP) performed by a single surgeon in Taiwan.

Materials and Methods: Complication (Clavien system) rates were prospectively assessed in 1000 consecutive patients undergoing RALP (Group I: cases 1-200, II: 201-400, III: 401-600, IV: 601-800 and V:801-1000). Clinical pathway was described below: Patients were allowed to have water and then resumed regular diet on POD 1-2. The drainage tube was removed and intravenous fluid discontinued on POD 1-3. Urine leakage was defined as urine drainage $>$ 100 ml at POD 4. Ileus was defined as inability to resume normal diet at POD 4.

Results: Significantly less blood loss occurred after every 200 cases of RALP (Group I 180 ml, II 119 ml, III 92 ml, IV 91ml, V: 88 ml, $p < 0.05$). Blood transfusion (BT) incidence was 3.5%, 0.5%, 1%, 0%, 0.5% in Groups I, II, III, IV and V, respectively. The total complication was 6.4% (64/1000) (surgical/medical : 5% / 1.4%). Complication rate was 12%, 6%, 6%, 4% and 4% in Groups I, II, III, IV and V respectively. Major complications (grade III-IV) were 2.5%, 1.5%, 2%, 1% and 1% in Groups I, II, III, IV and V, respectively. The most common complication was blood transfusion (11/1000 = 1.1%).