

Podium-1

PD1-1:

THE IMPACTS OF CORD BLOOD COTININE AND GLUTATHIONE-S-TRANSFERASE GENE POLYMORPHISMS ON BIRTH OUTCOME

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Objective: This study aimed to investigate the association between cord blood cotinine levels and birth outcome, and to determine whether fetal metabolic gene polymorphisms of glutathione-S-transferase (GST) modulates the effect of environmental tobacco smoke (ETS) exposure during pregnancy.

Materials and Methods: This study included 328 maternal and neonatal pairs. Maternal and cord blood cotinine levels were measured using high performance liquid chromatography. The glutathione-S-transferase T1 (GSTT1) and glutathione-S-transferase M1 (GSTM1) polymorphisms were examined using the polymerase chain reaction method. The birth outcomes included birth weight, length, and head circumference, and the risks of having low birth weight (LBW) and being small for gestational age (SGA).

Results: Cord cotinine level had a dose-dependent impact on the reduction of birth weight, length and head circumference in newborns. Elevation of cord blood cotinine concentration increased the rate of SGA and LBW. The neonates who had GSTT1 or GSTM1 polymorphism were associated with an increased risk of being SGA. A combination of the GSTT1 and GSTM1 null genotype exacerbated the effect of maternal ETS exposure on SGA more than the presence of either genotype alone (odds ratio=8.90, 95% confidence interval=1.00-79.5).

Conclusions: Cord blood cotinine adversely affects birth outcomes. GSTT1 and GSTM1 null genotype may modify the effect of cord blood cotinine on birth outcomes.

PD1-2:

GENETIC, CLINICAL AND BIOMARKER CORRELATES OF CIRCULATING CHEMERIN LEVELS IN TAIWANESE

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Objective: Chemerin is an adipokine and a mediator of inflammation that is associated with inflammatory disease, obesity, metabolic syndrome, and atherosclerotic cardiovascular disease. The genetic, clinical and biomarker correlates of circulating chemerin levels have not been fully elucidated. We aimed to analyze the determinants and correlates of *RARRES2* gene (encoding chemerin) variants and circulating chemerin levels in Taiwanese.

Materials and Methods: A total of 612 individuals were recruited for this study. In addition to clinical and metabolic phenotypes, 13 inflammatory marker levels, five adipokine levels and six single nucleotide polymorphisms (SNP) with coverage of the *RARRES2* gene region were analyzed.

Results: Participants were divided into 3 subgroups according to chemerin level tertiles. By both age- and gender-adjusted regression models, high chemerin concentrations and tertiles were positively associated with multiple metabolic phenotypes, circulating levels of inflammatory markers and adipokines and negatively associated with high-density lipoprotein cholesterol and adiponectin levels and estimated glomerular filtration rate (eGFR). Genotype and haplotype analysis revealed *RARRES2* SNPs significantly associated with chemerin, fibrinogen, interleukin 6 (IL6) and lipocalin 2 (LCN2) levels (maximum of *P* values of 5.27×10^{-6} , 0.003, 0.007 and 0.008 for rs3735167 or rs10282458 genotypes and and maximum of *P* values of 0.0002, 0.007, 0.016 and 0.011 for CGTTTA haplotype, respectively). By stepwise logistic regression analysis, C-reactive

protein level, leptin level, triglyceride level, eGFR, sex, rs3735167 genotypes, soluble P-selectin level and the use of anti-hyperetnsive drugs were all independently associated with chemerin levels ($P < 0.001$, < 0.001 , 0.002 , < 0.001 , 0.014 , 0.002 , 0.018 , and 0.029 , respectively).

Conclusions: Our data revealed the *RARRES2* gene variants as the genetic determinants of circulating chemerin, fibrinogen, IL6 and LCN2 levels in Taiwanese. The association of chemerin concentrations with multiple risk and prognostic factors for atherosclerosis provides further evidence for the molecular basis of chemerin playing a crucial role on the risk and progression of atherosclerotic cardiovascular disease.

PD1-3: HIGH SERUM ADIPOCYTE FATTY ACID BINDING PROTEIN LEVELS LINKED WITH INCREASED CAROTID: FEMORAL PULSE WAVE VELOCITY IN PATIENTS WITH TYPE 2 DIABETES

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Objective: Adipocyte fatty acid binding protein (A-FABP) is a novel fat-derived circulating protein, which is independently and positively associated with atherosclerosis and metabolic syndrome. Carotid-femoral PWV (cfPWV) is the gold standard for assessing central arterial stiffness and reflects vascular and subclinical organ damage and is now recognized as a surrogate marker for cardiovascular disease. The aim of this study was to evaluate the relationship between serum A-FABP levels and cfPWV values in patients with type 2 diabetes mellitus (DM).

Materials and Methods: Fasting blood samples were collected from 156 patients with type 2 DM. cfPWV measurements were performed by SphygmoCor system. Serum A-FABP concentrations were determined by enzyme immunoassay kit.

Results: By univariate linear analysis of cfPWV values in DM patients, we found that female DM patients ($r=0.302$, $p < 0.001$), logarithmically transformed age (log-age, $r=0.280$, $p < 0.001$), waist circumference ($r=0.179$, $p=0.026$), body fat mass ($r=0.162$, $p=0.043$), systolic blood pressure (SBP, $r=0.353$, $p < 0.001$), diastolic blood pressure (DBP, $r=0.227$, $p=0.004$), pulse pressure ($r=0.315$, $p < 0.001$), logarithmically transformed triglyceride (log-TG, $r=0.224$, $p=0.005$), logarithmically transformed urine albumin-to-creatinine ratio (log-UACR, $r=0.234$, $p=0.003$), logarithmically transformed homeostasis model assessment of insulin resistance (log-HOMA-IR, $r=0.158$, $p=0.049$), and A-FABP levels ($r=0.335$, $p < 0.001$) were positively correlated, whereas estimated glomerular filtration rate (eGFR, $r=-0.305$, $p < 0.001$) was negatively correlated with cfPWV values in DM patients. Multivariate forward stepwise linear regression analysis showed that log-age ($\beta=0.233$, $p=0.002$), SBP ($\beta=0.212$, $p=0.007$), log-TG ($\beta=0.156$, $p=0.037$), and A-FABP level ($\beta=0.198$, $p=0.011$) were independent predictors of cfPWV values in DM patients. Moreover, body fat mass ($\beta=0.350$, $p < 0.001$), log-UACR ($\beta=0.270$, $p < 0.001$) were positively, while eGFR levels ($\beta=-0.290$, $p < 0.001$) were negatively

associated with A-FABP levels in DM patients after multi-variable forward stepwise linear regression analysis.

Conclusions: Among DM patients, serum A-FABP level was positively associated with cfPWV level, and body fat mass, UACR were positively, while eGFR was negatively associated with A-FABP level.

PD1-4: PREDICTORS AND OUTCOME ANALYSIS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION COMPLICATING WITH CARDIOGENIC SHOCK

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Objective: Cardiogenic shock (CS) is uncommon in patients who suffered from acute myocardial infarction (AMI). However, long term-outcome and adverse predictors for outcomes in AMI patients with CS who received percutaneous coronary interventions (PCI) is less clear.

Materials and Methods: A total of 482 AMI patients who received PCI procedure were prospectively collected, including 53 patients with CS and 429 patients without CS. We compared clinical parameters and further analyzed the long term prognosis and predictors for AMI patients with CS including recurrent MI, mortality, and repeated-PCI.

Results: CS group had a lower central systolic pressure (CSP) and central diastolic pressure (CDP) (both $P < 0.001$). AMI patients with hypertension history were less prone to develop CS ($P < 0.001$). Calcium channel blockers (CCB) and statins were less used in the CS group after discharged ($P=0.012$, $P=0.04$, respectively). SYNTAX score was higher in CS group than non-CS group ($P < 0.001$) and predicted CS during admission ($P=0.002$). Cardiovascular death and all-cause death were higher in CS group than non-CS group (both $P < 0.001$). For patients with CS, stroke history was a predictor for recurrent MI ($P=0.036$); CS, age, SYNTAX score and diabetes were predictors for CV-mortality ($P < 0.001$, $P < 0.001$, $P=0.008$, $P=0.047$, respectively); CS, age and SYNTAX score, stroke history were predictors for all-cause mortality ($P < 0.001$, $P < 0.001$, $P=0.002$, $P=0.003$, respectively); CS, age and current smoking were predictors for repeated-PCI ($P < 0.001$, $P=0.018$, $P=0.027$, respectively).

Conclusions: Patients with AMI complicated by CS may have higher long-term mortality rates and higher repeated-PCI rates than those without CS. SYNTAX Score strongly correlated with development of CS in AMI patients during initial admission and may also predict long-term mortality

PD1-5: ATF3 AND ITS INDUCERS MEDIATES INHIBITORY EFFECTS AGAINST OBESITY AND METABOLIC DYSFUNCTION: IN VIVO AND IN VITRO MODEL STUDY

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Objectives: Obesity is a severe and complicated health issue related to lifestyle and dietary modifications, and is highly associated with metabolic syndrome and diabetes. Activating transcription factor 3 (ATF3) is a member of the ATF/ cAMP response element binding protein family of transcriptional factors. It can be induced by stress condition in a variety of tissues, including the adipocytes. However, the physiology and mechanism of ATF3 in adipocytes and obesity regulation in vivo are not clear.

Materials and Methods: ATF3^{-/-} mice were given high fat diet (HFD) for 16 weeks, and compared phenotypes and histology between the ATF3^{-/-} and the wildtype mice. We further investigate the role of ATF3 in 3T3L1 pre-adipocytes. ATF3 overexpressing adipocytes exhibited less lipid accumulation (Oil red O staining) with diminished expression of adipogenic markers and lipogenic markers as compared to the control cells.

Results: We found that HFD fed ATF3^{-/-} has body weights significantly increased as compared to B6 wild type littermate mice. Histology demonstrated increased adipocyte cell diameter in ATF3^{-/-} mice. Mechanistically, we found that expression of ATF3 repressed the ChREBP promoter activity of the p (-2980)/Luc reporter in 3T3L1 pre-adipocytes, whereas the expression of ATF3 did not repress both PPAR γ 2 and FABP4 promoter activities. These results suggest that ATF3 inhibits 3T3L1 pre-adipocyte differentiation and lipid droplet formation in murine adipocytes through attenuating cellular inflammation and inhibiting both adipogenic and lipogenic processes; likely through ChREBP repression. We then established a screening platform for ATF3 inducer, and found several compounds which can induce ATF3, and the preliminary in vitro 3T3-L1 cell studies and in vivo mouse study demonstrated that compound 5 could induce UCP1 and promote white adipocyte browning in vitro and inhibit HFD induced obesity and increase insulin sensitivity in mice.

Conclusions: These results suggest that ATF3 inhibits 3T3L1 preadipocyte differentiation and lipid droplet formation in murine adipocytes through attenuating cellular inflammation and inhibiting both adipogenic and lipogenic processes; likely through repressing the ChREBP pathway. Therefore, our results confirm that ATF3 regulates HFD-induced adipocytes hypertrophy and lipid metabolism in mice via ChREBP repression.

Podium-2

PD2-1:

APPLICATION OF DEEP BRAIN STIMULATION IN PARKINSON'S DISEASE AND BEYOND: A MYTH OR REALITY?

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Objective: Deep brain stimulation (DBS) is a stereotactic neurosurgical procedure involving deep brain electrodes, connection wires and implantable pulse generator. In 1987, thalamic DBS was first introduced for the treatment of essential tremor. Then it was proved to be an effective surgical alternative in the treatment of Parkinson's disease since 1992.

Materials and Methods: Thirty years after the first introduce of DBS, the reversibility and minimal invasive character of the procedure are widely accepted and recognized by neurologist, neurosurgeon, psychiatrist and scientist as a treatment modality for movement disorders, intractable seizures and obsessive-compulsive disorder as well as research tool in exploring the complex neuro-circuits of the brain. We will review the evidences to confirm the roles of DBS in these various neuropsychiatric diseases.

Results: DBS has been confirmed its benefit in movement disorders with level I evidence. However, its effectiveness in psychiatric diseases may still need to be further explored.

Conclusion: DBS is a novel tool that it not only provides better treatment for several medical refractory neuropsychiatric diseases but also leads to better understanding of how neural circuits work in these diseases.

PD2-2:

DOES THE COMBINATION OF ACUTE HEARING LOSS AND VERTIGO INCREASE STROKE RISK?

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Objective: Hearing loss is often thought of as an inner ear ("peripheral") symptom, but SHL can be an initial manifestation of posterior circulation stroke ("central"), especially when co-occurring with vertigo. To date, no large-scale study has compared stroke risk across the three populations above. In this study, we compare long-term stroke risk among patients with (1) "sudden hearing loss (SHL) alone"; (2) "vertigo alone"; and (3) "SHL with vertigo" using a large national healthcare database.

Materials and Methods: Patients with first incident SHL (ICD-9-CM 388.2) or vertigo (ICD-9-CM 386.x, 780.4) identified from the National Health Insurance Research Database in Taiwan (2002-2009). We defined "SHL with vertigo" as patients with a vertigo-related diagnosis +/-30 days from the index SHL event. Those without a vertigo-related diagnosis (or temporally remote to the SHL) were considered "SHL alone". The "vertigo alone" group had no diagnosis of SHL. All of the patients were followed until stroke, death, withdrawal from database, or current end of database (December 31, 2012) for a minimum follow-up period of 3 years. Risks of stroke were compared across groups using hazard ratios (HR) and 95% confidence intervals (CI).

Results: We studied 218,656 patients (1,998 SHL alone; 215,980 vertigo alone; 678 SHL with vertigo). Long-term stroke rates during follow-up were 3.0% (SHL alone), 3.9% (vertigo alone), and 5.5% (SHL with vertigo). The

unadjusted hazard for stroke was higher in SHL with vertigo than SHL alone ($p=0.001$; HR=1.93, 95% CI=1.28-2.91) and vertigo alone ($p=0.003$; HR=1.63, 95% CI=1.18-2.25). After adjusting for age, gender, urban status, region, and cardiovascular risk, SHL with vertigo remained a stroke hazard relative to SHL alone (adjusted HR=1.75, 95% CI=1.15-2.66) but not vertigo alone (adjusted HR=1.23, 95% CI=0.89-1.70).

Conclusion: The combination of SHL with vertigo appears to increase stroke risk over SHL alone. SHL in patients with vertigo is not necessarily a benign “peripheral” sign.

PD2-3: DIFFERENCES OF DIFFUSION TENSOR IMAGING IN EARLY-STAGE SUBCORTICAL ISCHEMIC VASCULAR DISEASE, ALZHEIMER’S DISEASE AND NORMAL AGEING

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Objective: To describe and compare diffusion tensor imaging (DTI) parameters between patients with subcortical ischemic vascular disease (SIVD) and Alzheimer’s disease (AD) diagnosed using structuralized neuropsychiatric assessments.

Materials and Methods: Thirty-five patients with SIVD, 40 patients with AD, and 33 cognitively normal control (NC) subjects matched by age and education level underwent cognitive function assessments and DTI examinations. Comparisons among these three subgroups with regards to cognitive performance and DTI parameters including fractional anisotropy (FA) and mean diffusivity (MD) values were performed.

Results: With regards to cognitive performance, the patients with SIVD had lower total scores in frontal assessment battery (FAB) compared to those with AD in the context of comparable global cognitive scores. With regards to DTI parameters, there were more regions of significant differences in FA among these three subgroups compared with MD. Compared with NC group, the patients with SIVD had significant global reductions in FA, while significant reductions in FA among the patients with AD were regionally confined within the genu and splenium of the corpus callosum and major fibers within the left hemisphere. Analysis of FA values within the left forceps major, left anterior thalamic radiation, and genu of the corpus callosum revealed a 71.8% overall correct classification with sensitivity of 69.4%, specificity of 73.8%, positive predictive value of 69.4%, and negative predictive value of 73.8% in discriminating patients with SIVD from those with AD.

Conclusions: Our findings suggest the effectiveness of DTI measurements in distinguishing patients with early-stage AD from those with SIVD, with discernible changes in spatial distribution and magnitude of significance of the DTI parameters. Strategic FA assessments provided the most robust discriminative power to differentiate SIVD from AD, and FAB may serve as an additional cognitive marker.

PD2-4: CENTRAL NEURAL CIRCUIT DECODING AND EN- CODING FROM MECHANISM ELUCIDATION TO TREATMENT: MEMORY, EMPATHY AND NEURODE- GENERATIVE DISEASE

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Objective: Given the availability of more novel neuroscience tools and engineering techniques, we would be able to decipher how cognition works (ex: decision making under conflict) and neurological diseases progress (ex: beta band frequency oscillation in Parkinson’s disease). The advancement of neurosurgery in recent decades further allows us to identify these biological signatures in patients and to enable identification of large scale neural circuit and close-loop neuromodulation.

Materials and Methods: The first part of the project is that we simultaneously recorded single-neuron spike activity and local field potentials (LFP) from the subthalamic nucleus (STN) of eight Parkinson’s disease (PD) patients while they performed a novel Aversion-Reward conflict (ARC) task. Subjects decide whether to accept an offer of a monetary reward paired with a variable risk of an aversive air puff to the eye. The second part essentially treats Alzheimer’s disease (AD) rat model with deep brain stimulation of cognitive circuit through enhancing neural plasticity. Rostral Intralaminar thalamic deep brain stimulation (ILN-DBS) has been shown to improve attention and cognition through neuronal activation and brain plasticity.

Results: Part I: During high-conflict decisions, LFP in STN had increased activity of sub-theta band, while increased activity of theta was found during low-conflict decisions. Single-trial STN theta-band power was positively correlated with degree of decision conflict. Interestingly, the decision to take or forgo the reward is predicted by theta-frequency phase-locked of STN neurons. Part II: We showed that rostral ILN-DBS effectively reversed the deterioration in cognition and the loss of dendritic spines and glutamatergic synapses in the medial prefrontal cortex and hippocampus, which are hallmarks of AD, caused by A β toxicity.

Conclusion: Both findings support that different neurological disorders might have individual pathophysiological biomarkers within central neural circuit and this also applies to variable high cognitive function from weighing up conflict and reward to altruistic behavior. By decoding the cacophony and encoding of large scale neural network, we could bridge basic science and clinical care and achieve better understanding cognition and diseases treatment.

PD2-5: STUDY ON THE PRESCRIPTION PATTERNS OF CHI- NESE HERBAL PRODUCTS AND ITS EFFECTS ON THE DEPRESSION RISK FOR PATIENTS WITH RHEU- MATOID ARTHRITIS

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Objective: Traditional Chinese Medicine (TCM), a common used complementary and alternative medicine (CAM) disciplines, has been used in the treatment of rheumatoid arthritis (RA) during the past decade. However, large-scale surveys examining the utilization of Chinese herbal products in treating RA and the accompany common psychological disorder, depressive symptom, are still lacking. This study aimed to present the prescription patterns of Chinese herbal products and its effects on the depression risk for RA patients.

Materials and Methods: A longitudinal cohort study was done to investigate the effect of TCM on depression risk among RA patients. Data from the Taiwanese National Health Insurance Research Database were used to identify 8101 newly diagnosed RA patients aged 20 years or older between 1998 and 2010. All enrollees were followed until the end of 2012 to record the incidence of depression. A Cox proportional hazards regression model was used to compute the hazard ratios (HRs).

Results: Among the 8,101 RA subjects, 677 first episodes of depression occurred; 428 were reported among the non-TCM users and 249 among the TCM users during the follow-up of 31573.45 and 26662.89 person-years (PYs), respectively. The incidence rate of depression was lower among TCM users than among non-TCM users (9.39 vs 13.56, respectively, per 1000 PYs), with an adjusted HRs of 0.65 (95% confidence interval=0.56-0.77). In addition, among the most commonly prescribed Chinese herbal products for RA patients, seven formulas were found to lessen the subsequent risk of depression for RA subjects, including Radix Cyathulae, Platycodon grandiflorus, Panax notoginseng, Jia-wei-xia-yao-san, Dang-gui-nian-tong-tang, Chih-kan-tsoo-tang, and Suan-tsoo-jen-tang.

Conclusions: This study supported the integration of TCM into clinical practice was beneficial to provide favorable prognoses for RA individuals, which might be a reference in instituting the more appropriate healthcare strategies.

Podium-3

PD3-1:

THE MECHANISM OF NON-TUMORIGENESIS OF HUMAN EMBRYONIC STEM CELLS CO-CULTURED WITH HUMAN UMBILICAL CORD MESENCHYMAL STEM CELLS

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Objective: Human pluripotent stem cells harbor hope in regenerative medicine, but have limited application in treating clinical diseases due to teratoma formation. Our previous study has indicated that human umbilical cord mesenchymal stem

cells (HUCMSC) can be adopted as non-teratogenic feeders for human embryonic stem cells (hESC). This work describes the mechanism of non-tumorigenesis of that feeder system.

Materials and Methods: TW1 hES cell line, HUCMSC and mouse embryonic fibroblast (MEF) were used for the co-culture experiments. After co-culture, RT-PCR and qPCR were used for analysis pluripotency and differentiated gene expressions. ChIP assay was used for beta-catenin-cmyc promoter binding experiment. FH535 and DKK1 were used for suppression of beta-catenin; LiCl and BIO (6-bromindirubin-3'-oxime) were used for upregulation of beta-catenin. The change of protein expression was evaluated by Western blot. TCF/LEF assay was used to demonstrate the transactivating activity of beta-catenin. Finally, xenograft experiment using NOD-SCID mice was done. The resulted tumor was sent to immunohistochemistry.

Results: In contrast with the mouse embryonic fibroblast (MEF) feeder, HUCMSC down-regulates the WNT/ β -catenin/c-myc signaling in hESC. Thus, adding β -catenin antagonist (FH535 or DKK1) down-regulates β -catenin and c-myc expressions, and suppresses tumorigenesis (3/14 vs. 4/4, $p=0.01$) in hESC fed with MEF, while adding the β -catenin enhancer (LiCl or BIO) up-regulates the expressions, and has a trend ($p=0.056$) to promote tumorigenesis (2/7 vs. 0/21) in hESC fed with HUCMSC. Furthermore, FH535 supplement does not alter the pluripotency of hESC when fed with MEF, as indicated by the differentiation capabilities of the three germ layers.

Conclusions: Taken together, this investigation concludes that WNT/ β -catenin/c-myc pathway causes the tumorigenesis of hESC on MEF feeder, and β -catenin antagonist may be adopted as a tumor suppressor.

PD3-2:

KAPOSI'S SARCOMA HERPES VIRUS IN MILD CIRRHOTICS

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Objective: The seroprevalence of Kaposi's sarcoma herpes virus (KSHV) was greater in moderate or severe cirrhotics than in healthy controls. It appeared to be associated with cirrhosis severity, sex, and disease etiology. This study investigated the status of KSHV infection in mild cirrhotics.

Materials and Methods: Plasma samples collected from 93 mild cirrhotics and 93 age- and sex-matched healthy controls were analyzed for KSHV antibody and KSHV DNA.

Results: Mild cirrhotics had higher seropositivity for KSHV antibodies than healthy controls ($P=0.0001$). Univariate logistic regression analysis revealed that an age ≥ 55 years (odds ratio [OR] 2.88, $P=0.02$), hepatitis C virus (HCV) infection (OR 3.42, $P=0.01$), and hepatitis activity (OR 4.10, $P=0.004$) were associated with KSHV seropositivity in mild cirrhotics. Stepwise multivariate logistic regression analysis confirmed that age ≥ 55 years (adjusted OR [aOR] 1.92, $P=0.04$) and hepatitis activity (aOR 3.55, $P=0.005$) were independent factors. The rate of hepatitis activity was higher in HCV-infected than in hepatitis B virus-infected patients ($P<0.0001$) and in women than in men ($P=0.0001$). Mild cirrhotics who were seropositive for KSHV or HCV or had hepatitis activity were significantly older ($P=0.02$, <0.0001 , and <0.0001 , respectively). Plasma samples from all participants were negative for KSHV DNA. KSHV antibody titers in mild cirrhotics also markedly exceeded those in controls ($P<0.0001$), as did those in patients ≥ 55 years old vs. younger patients ($P=0.01$), those in patients with vs. without HCV-infection ($P=0.0008$), and those in patients with vs. without hepatitis activity ($P=0.0005$).

Conclusions: Mild cirrhotics had a high KSHV seroprevalence and HCV infection, and, in particular, old age and hepatitis activity were predictors.

PD3-3:

DIPYRIDAMOLE DECREASES DIALYSIS RISK AND IMPROVES SURVIVAL IN PATIENTS WITH PRE-DIALYSIS ADVANCED CHRONIC KIDNEY DISEASE: A NATIONWIDE DATABASE ANALYSIS

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Objective: Dipyridamole decreases proteinuria and improves renal function progression in patients with glomerular disease through its inhibition of platelet activation and enhanced nitric oxide expression. Few studies have evaluated the effects of dipyridamole on renal outcome or survival is unclear in CKD stage 5 patients who have not yet received dialysis (CKD 5 ND).

Materials and Methods: A prospective cohort study was conducted based on the Taiwan National Health Insurance Research Database. From January 1, 2000 to June 30, 2009, we enrolled 28,497 patients who had a serum creatinine >6 mg/dL and a hematocrit $<28\%$ and who were treated with erythropoiesis-stimulating agents (ESAs). All patients were further divided into two groups with or without dipyridamole use within 90 days after starting ESA therapy. Patient followed-up took place until dialysis, death before initiation of dialysis or December 31, 2009. The primary outcomes were long-term dialysis and death before initiating dialysis.

Results: The dipyridamole users and nonusers groups included 7,746 and 20,751 patients, respectively. We found that 20,152 patients (70.7%) required long-term dialysis and 5,697 patients (20.0%) died before a progression to end-stage renal disease required dialysis. After propensity score-matching, dipyridamole users were associated with lower risks for

long-term dialysis (adjusted HR, 0.96; 95% CI, 0.93-0.99) and death (adjusted HR, 0.91; 95% CI, 0.85-0.97) compared with nonusers.

Conclusions: Dipyridamole exhibited a protective effect in reducing the risk for long-term dialysis and death among CKD 5 ND patients. Randomized studies are needed to validate this association.

PD3-4:

DOSES OF RENIN-ANGIOTENSIN SYSTEM INHIBITORS BUT NOT BETA-BLOCKERS INDEPENDENTLY PREDICT MORTALITY AND HEART FAILURE AFTER ST-ELEVATION MYOCARDIAL INFARCTION

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Objective: In patients with ST-elevation myocardial infarction (STEMI), it is not clear whether low-dose rennin-angiotensin system inhibitors and beta-blockers can result in the same benefits achievable with higher target doses.

Materials and Methods: We recorded daily doses of angiotensin converting enzyme inhibitors (ACEI), Angiotensin II receptor blockers (ARB), and beta-blockers in 331 patients with STEMI. Echocardiographic studies were performed at baseline and were repeated 6 months later. Clinical events, including all-cause death and heart failure, were followed for 2 years.

Results: Patients receiving high-dose ACEI/ARB had less increase in left ventricular end diastolic volume index (LVEDVI) at 6 months. In linear regression model, ACEI/ARB doses or beta-blocker doses were not predictors of increase in LVEDVI at 6 months. Kaplan-Meier survival curves showed that doses of ACEI/ARB ($p=0.003$) and beta-blocker ($p=0.027$) were significant predictors of death and heart failure. In multivariable Cox regression analysis, the independent predictors of all-cause death and heart failure were diabetes mellitus ($p<0.001$), Left ventricular ejection fraction ($p=0.026$), and ACEI/ARB doses ($p=0.025$). Beta-blocker doses were not predictors of clinical events in multivariable analysis ($p=0.413$).

Conclusions: Higher doses of ACEI/ARB, but not beta-blockers, were associated with lower rate of heart failure and all-cause death.

PD3-5:

EFFECTS OF DIABETES CONVERSATION MAP PROGRAM ON GLYCEMIC CONTROL AMONG DIABETIC PATIENTS: A HOSPITAL-BASED STUDY IN TAIWAN

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Objective: In response to the emerging global diabetes epidemic, healthcare providers are searching for new and better education strategies to help people make positive behavior

changes to successfully prevent or manage diabetes mellitus (DM). This study aimed to examine the effects of the Diabetes Conversation Map Program (DCMP), a novel health education approach, for diabetic patients in Taiwan.

Materials and Methods: A quasi-experimental research design using convenience sampling and non-random group assignment was applied to recruit 95 diabetic cases from a hospital in Taiwan between January to May of 2014. The experiment group (n=49) received seven sessions of DCMP that delivered over two months in addition to routine care, while the control group (n=46) received routine care only during the same period. We conducted structured questionnaire survey and reviewed medical record at three time points (before DCMP, three days after DCMP, and three months after DCMP completion) to collect the data of glycemic control. The corresponding effects were determined using generalized estimating equation (GEE) model.

Results: The analytic results by GEE model revealed that, after adjustment for the confounders, the cases of experiment group had the lower level of fasting plasma glucose ($\beta=-46.93$; $p=0.001$), HbA1c ($\beta=-0.70$; $p<0.001$), and body mass index ($\beta=-1.73$; $p=0.01$) than those in control group after DCMP. Most importantly, these positive effects could further maintain for 3 months after intervention.

Conclusions: This study showed that DCMP could be used in assisting healthcare professionals to provide appropriate interventions for DM patients.

Podium-4

PD4-1:

LAPAROSCOPIC SURGERY IN ABDOMINAL TRANSPLANT PATIENTS

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Objective: It is no doubt that laparoscopic surgery nowadays is widely used in many abdominal surgical procedures from laparoscopic cholecystectomy to Whipple procedure. However, there is still very few studies of such operation in the transplanted patients. Objective of this paper is to share our experience of safety, feasibility, and effectiveness of minimal invasive surgery in abdominal transplant patients.

Materials and Methods: We reported a total of 8 cases who underwent laparoscopic surgery: six liver transplant cases and three kidney transplant. Two of them received laparoscopic surgery for presumed acute appendicitis in 8 months after deceased donor liver transplant (DDLTL) and 16 months after deceased donor kidney transplant (DDKT) respectively. A case of asymptomatic small right colon cancer detected one month after living donor liver transplant (LDLT) underwent laparoscopic right hemi-colectomy and radical lymph node dissection. The fourth patient sustained chylous ascites underwent laparoscopy for accurate diagnosis and drainage 6 months after LDLT helped in management of difficult chylous ascites with successful outcome. A case of morbid obesity with BMI of 41 kg/m² received laparoscopic sleeve gastrectomy three years after DDKT with good

response. The two liver transplant patients with multiple incisional hernia of subcostal wound received laparoscopic hernia repair with dual mesh about three years and two years after DDLTL respectively. Lastly, a DDKT patient sustained ipsilateral right sided native kidney RCC after 10 years after transplant and underwent laparoscopic right radical nephrectomy.

Results: All the patients had been operated without any significant morbidity and recovered uneventfully with all the benefits of MIS.

Conclusion: We would like to emphasize that laparoscopic surgery for major operation in abdominal surgery is feasible, safe, and can also obtain excellent recovery as in non-transplant patients.

PD4-2:

CLINICAL RESULT OF ARTHROSCOPIC CARTILAGE REGENERATION FACILITATING PROCEDURE (ACRFP) FOR CHRONIC KNEE PAIN DUE TO OSTEOARTHRITIS

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Objective: Osteoarthritis of knee is one of the most common disorders treated by the orthopedic surgeons, and traditional managements consist of pain control, with joint replacement for end-stage disease. Several studies conclude that arthroscopic lavage and debridement has no better result than sham surgery, however, significant pain relief has also been reported. In this study, we are presenting the clinical results of arthroscopic cartilage regeneration facilitating procedure for chronic knee pain due to osteoarthritis, in terms of knee injury and osteoarthritis outcome score (KOOS).

Materials and Methods: Patients who received ACRFP for chronic knee pain due to osteoarthritis were recruited. They had all received conservative treatment with physical therapy, pain medication or intra-articular injection for a duration of more than 6 months, and had the radiographic staging of II-III osteoarthritis, according to Kellgren-Lawrence classification. The KOOS were evaluated by a study nurse at five clinical stages, which were preoperative at the ward, 3, 6, 9, or 12 months postoperative. The surgical method followed the procedures of ACRFP, including arthroscopic synovectomy, excision of medial plica, and release of medial joint capsule as well as lateral patella retinaculum. Data was analyzed with the software SPSS®, and ANOVA was performed. The results were analyzed in terms of symptoms, pain, activity of daily living (ADL), sports, and quality of life (QoL). This study had been approved by the Institutional Review Board of our hospital.

Results: During a period of 9 months, we recruited 177 patients (55 males and 122 females). Not all the patient could be assessed completely for the five clinical stages, therefore, a total of 248 sets of data were collected. The average age in the male was 67.4 year-old, and that in the female was 56.7 year-old. We had found a significant improvement of the score in all of the 5 categories on the first postoperative follow-up at 3 months, except for the sports section, which gained its

significance later at 1 year postoperatively. The scores showed improvement throughout the rest of follow-up, until one year postoperatively.

Conclusions: Arthroscopic treatment for osteoarthritis is still controversial; however, in our study, the short term results from the aspect of chronic knee pain seems promising. ACRFP is not the same procedure as the arthroscopic synovectomy and debridement reported in most literatures, and capsular release to maintained a decompressed patellofemoral joint with balanced tension may have a beneficial effect. There are several drawbacks in this study. This is a cross sectional study, and not every patient was assessed completely for all the 5 clinical stages. The one-year follow-up is definitely too short in order to draw a firm conclusion, and longer period of follow-up is needed.

PD4-3: VISUALIZATION OF THE METABOLISM VIA NON INVASION IN VIVO IMAGING SYSTEM IN THIOACETAMIDE INDUCED HEPATIC FAILURE MOUSE MODEL

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Objective: Thioacetamide (TAA) is widely applied in inducing hepatic failure. In general, TAA induced hepatic failure was evaluated by detecting blood biochemical indicators and indocyanine green retention (ICG) test. The collection of blood sample is an intrusive method to measure the degree of hepatic damage. Therefore, it is a significant issue to address the hepatic failure by noninvasive way. Here, we established a non-invasive method to evaluate the metabolism in hepatic failure mouse model by tracing ICG injected subcutaneously under Non Invasion *In Vivo* Imaging System (IVIS).

Materials and Methods: 6~8 week nude mice were administrated TAA 200 mg/kg through intraperitoneal injection three times a week for one month. The blood samples were collected at two and four week after TAA treatment for alanine transaminase (ALT), aspartate transaminase (AST), and total bilirubin (T-Bil). Hepatic failure mice were injected ICG 10 mg/kg subcutaneously at two and four week after TAA treatment and observing the metabolism under Non Invasion *In Vivo* Imaging System (IVIS) at 0.25, 0.5, 0.75, 1, 2, 3, 4, 5, 6, and 24 hours. The mice were dissected at four week after TAA treatment to collect liver for histology analysis.

Results: In blood biochemical indicators analysis, AST, ALT, and T-Bil were significantly increased at four week after TAA treatment. The liver fibrosis could be observed at four week after TAA treatment in H&E staining. Under Non Invasion *In Vivo* Imaging System (IVIS) for detecting the metabolism of ICG, we discovered that the ICG was accumulated in the liver in the first 1 hour after ICG injection, then moved to the intestine from 1 to 6 hours, disappeared at 24 hours eventually. Moreover, the ICG was accumulated in the gallbladder at 5 to 6 hours after ICG administration in TAA treated for 2 and 4 week groups.

Conclusions: The hepatic failure mouse model induced by TAA was established successfully. Moreover, the hepatic failure could be visualized by ICG-IVIS non-invasively which

could reduce the stress of blood sampling and offering comprehensive understanding of hepatic failure. Further applications of the method include monitoring liver failure treatment, stem cell transplantation into liver or liver transplantation effect.

PD4-4: EVALUATION OF THE ASSOCIATION BETWEEN QUANTITATIVE MAMMOGRAPHIC DENSITY AND BREAST CANCER OCCURRED IN DIFFERENT QUADRANTS

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Objective: To investigate the relationship between mammographic density measured in four quadrants of a breast with the location of the occurred cancer.

Materials and Methods: One hundred and ten women diagnosed with unilateral breast cancer that could be determined in one specific breast quadrant were retrospectively studied. Women with previous cancer/breast surgery were excluded. The craniocaudal (CC) and mediolateral oblique (MLO) mammography of the contralateral normal breast were used to separate a breast into 4 quadrants: Upper-Outer (UO), Upper-Inner (UI), Lower-Outer (LO), and Lower-Inner (LI). The breast area (BA), dense area (DA), and percent density (PD) in each quadrant were measured by using the fuzzy-C-means segmentation. The BA, DA, and PD were compared between patients who had cancer occurring in different quadrants.

Results: The upper-outer quadrant had the highest BA (37±15 cm²) and DA (7.1±2.9 cm²), with PD=20.0±5.8%. The order of BA and DA in the 4 separated quadrants were: UO>UI>LO>LI, and almost all pair-wise comparisons showed significant differences. For tumor location, 67 women (60.9%) had tumor in UO, 16 (14.5%) in UI, 7 (6.4%) in LO, and 20 (18.2%) in LI quadrant, respectively. The estimated odds and the 95% confidence limits of tumor development in the UO, UI, LO and LI quadrants were 1.56 (1.06, 2.29), 0.17 (0.10, 0.29), 0.07 (0.03, 0.15), and 0.22 (0.14, 0.36), respectively. In these 4 groups of women, the order of quadrant BA and DA were all the same (UO>UI>LO>LI), and there was no significant difference in BA, DA or PD among them (all p>0.05).

Conclusions: Breast cancer was most likely to occur in the UO quadrant, which was also the quadrant with highest BA and DA; but for women with tumors in other quadrants, the density in that quadrant was not the highest. Therefore, there was no direct association between quadrant density and tumor occurrence.

PD4-5:

APPLICATION OF GRAY LEVEL MAPPING IN COMPUTED TOMOGRAPHIC COLONOGRAPHY: A PILOT STUDY TO COMPARE WITH TRADITIONAL SURFACE RENDERING METHOD FOR IDENTIFICATION AND DIFFERENTIATION OF ENDOLUMINAL LESIONS

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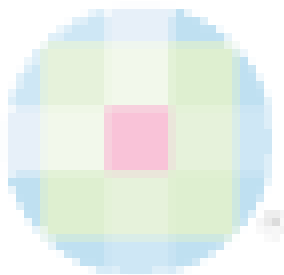
Objective: In traditional surface rendering (SR) Computed tomographic endoscopy, only shape of endoluminal lesion is depicted without gray level information unless the volume rendering technique is used. However volume rendering technique is relatively slow and complex in terms of computation time and parameter setting. We use computed tomographic colonography (CTC) images as examples and report a new visualization technique by

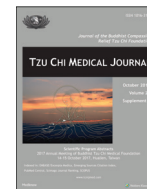
three dimensional (3D) gray level mapping (GM) to better identify and differentiate endoluminal lesions.

Materials and Methods: There are thirty three various endoluminal cases from thirty patients evaluated in this clinical study. These cases were segmented using gray-level threshold. The marching cube algorithm was used to detect isosurfaces in volumetric data sets. GM is applied using the surface gray level of CTC. Radiologists conducted the clinical evaluation of the SR and GM images. The Wilcoxon signed ranks test was used for data analysis.

Results: Clinical evaluation confirms GM is significantly superior to SR in terms of gray level pattern and spatial shape presentation of endoluminal cases ($P < 0.01$) and improves the confidence of identification and clinical classification of endoluminal lesions significantly ($P < 0.01$). The specificity and diagnostic accuracy of GM is significantly better than those of SR in diagnostic performance evaluation ($P < 0.01$).

Conclusions: GM can reduce confusion in 3D CTC and well correlate CTC with sectional images by the location as well as gray level value. Hence, GM increases identification, differentiation of endoluminal lesions and facilitates diagnostic process.





Moderated Poster-1

MP1-1: COMORBIDITY BURDEN AND COGNITIVE IMPAIRMENT IN EARLY DEMENTIA

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Objective: Medical comorbidity is common in elderly patients with dementia. How co-existing chronic diseases as a whole affect cognitive performance in dementia is not clear. We aimed to investigate the association between comorbidity burden and cognitive impairment in patients with early-stage Alzheimer's disease (AD) and related dementia in a cross-sectional study.

Materials and Methods: We enrolled patients with diagnosis of early-stage AD and related dementia from memory clinic during 1/1/2015-5/31/2017. We referenced the multiple chronic conditions proposed by the US Centers for Disease Control and specified 14 chronic diseases for medical comorbidity in-person interview. In addition, Charlson index and Cumulative Illness Rating Scale-Geriatric (CIRS-G) were used to summarize comorbidity burden. We assessed their cognitive function by mini-mental state examination (MMSE), clinical dementia rating scale, and clock drawing. Generalized linear model was employed to examine the association between comorbidity indices and cognitive performance.

Results: A total of 137 patients with early-stage dementia were recruited with mean age at 77.6 (SD=6.0), female predominance (n=82, 59.9%), and lower levels of education attainment (34.3% without formal education). Clinical diagnosis of AD was made in 115 patients (84.6%). The most common co-existing chronic diseases were osteoarthritis (69.3%), hypertension (65.0%), dyslipidemia (37.2%), diabetes mellitus (33.6%), coronary artery disease (21.9%), and osteoporosis (15.3%). The median number of disease categories in CIRS-G endorsed by patients or their caregivers was 7 (range: 2-13). After adjusting for age, sex, and education, the generalized linear model showed that higher CIRS-G severity index was associated with lower MMSE scores (p=0.01). However, Charlson comorbidity index (p=0.14), CIRS-G total score (p=0.36), and the number of medical comorbidity (p=0.43) were not predictive of cognitive function.

Conclusions: Although multimorbidity is very common in early-stage dementia, the key predictor of cognitive impairment is CIRS-G severity index. Longitudinal follow ups along with information on medication burden are warranted to elucidate the dynamic relationship between comorbidity and cognitive outcome in dementia.

MP1-2:

LOW DIASTOLIC BLOOD PRESSURE AND HIGH BLOOD PRESSURE VARIABILITY ARE RISK FACTORS FOR COGNITIVE DECLINE IN OLDER PEOPLE

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Objective: The relationship between blood pressure (BP) and cognitive impairment is not fully understood. Some studies have reported that hypertension is a risk factor for dementia and cognitive impairment. By contrast, other studies have reported that diastolic hypotension is a risk factor. However, some studies have demonstrated no association of BP with the development of dementia and cognitive decline over time in older adults. This study investigated the association of visit-to-visit blood pressure (BP) and its variability with cognitive decline in older people.

Materials and Methods: All the 94 participants were people aged ≥ 65 years who volunteered to participate in the community environmental protection station service between February 1, 2015, and July 31, 2015. All information was confirmed by a geriatric psychiatrist. Physical health: Height, body weight, body mass index, and BP at rest were measured at the index date. In addition, BP was measured in the morning one to five times every week for 4 consecutive months. Cognitive function: The Mini-Mental Status Examination (MMSE) and the Clinical Dementia Rating (CDR; MMSE1 and CDR1) were administered during the initial assessment, and their updated versions (MMSE2 and CDR2) were administered 4 months after the service.

Results: The Middle-stage/Moderate Cognitive Impairment (MMSE ≤ 21) group had a significantly lower minimum diastolic BP and higher diastolic CV than did the Mild/No Cognitive Impairment (MMSE > 21) group. After adjustment for the effect of age, the minimum diastolic BP was significantly and positively associated with MMSE scores (P=0.033). To further evaluate the effect of low diastolic BP on cognitive function, we compared the initial and 4-month MMSE scores between the low diastolic BP (LDBP) group (minimum diastolic BP ≤ 50 mmHg) and control group (minimum diastolic BP > 50 mmHg). The results revealed that 4 month MMSE scores were significantly lower in the LDBP group than in the control group (22.57 \pm 3.07 vs. 25.92 \pm 3.31, P $<$ 0.01).

Conclusions: Low diastolic BP and high diastolic BP variations are risk factors for cognitive function decline in older people.

MP1-3: PREVALENCE OF OBSTRUCTIVE SLEEP APNEA IN PATIENTS WITH PECTUS EXCAVATUM: A PILOT STUDY

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Objective: Laryngomalacia is the most common congenital laryngeal anomaly and had been found to associated with pectus excavatum (PE). Obstructive sleep apnea (OSA) shared the same pathologic problem of upper airway obstruction. However, only few studies evaluated the association between OSA and PE. The prevalence of pectus excavatum (PE) in patients with obstructive sleep apnea (OSA) had been reported. However, to date, there was still no published study to establish the prevalence of OSA in patients with PE. We conducted this pilot study to evaluate the prevalence of OSA in patients with PE.

Materials and Methods: Totally, 42 patients with PE who were admitted for Nuss surgery to correct PE in Taipei Tzu Chi hospital during October 2015 to September 2016 was enrolled. ESS (Epworth sleepiness scale) questionnaire was used for evaluate subjective excessive daytime sleep, and overnight polysomnography was used for evaluate sleep apnea. 42 patients completed the ESS questionnaires and 32 patients completed the overnight polysomnography before Nuss surgery.

Results: There were 11 of 42 (26.2%) patients reported excessive daytime sleepiness suggesting high risk of OSA, and 8 of 32 patients (25%) had OSA with apnea/hypopnea index more than 5 per hour.

Conclusions: The prevalence of OSA in our patients with pectus excavatum seems higher than that in general population. There might be an association between OSA and PE. OSA might be a potential risk factor or aggravating factor for the mechanism of PE formation. Further studies are needed to document their relationship.

MP1-4: ESTABLISH THE AUTOMATIC EARLY WARNING SYSTEM TO REDUCE IN HOSPITAL CARDIAC ARREST EVENTS

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Objective: Early warning systems (EWS) are recommended as part of the early recognition and response to patient deterioration. Patients who suffering from cardiac arrest are manifested with respiratory or hemodynamic clinical change prior 6 to 8 hours. The purpose of this study was to establish an automatic early warning system by patient's vital signs obtained from wireless monitors, and test the performance and benefit of the warning system.

Materials and Methods: We installed a program to connect the original vital signs monitor with medical information system through barcode reader and physiological information transmission gateway. The system uploaded the vital sign data automatically to server without manual data input. We developed our Modified EWS by patient's attribute, the Modified EWS was referred from Morgan (1997) who suggest the five physiological parameters for EWS, remove the conscious items judged by human factor, and add the amplified variation of blood pressure as the Modified EWS. The system informed doctors to notice the warning signs while the scores calculated at the first time. We tested the validity of the Modified EWS with previous patient data (23,380 TPR records) to understand the correlation between Modified EWS score and the time interval to patient deterioration (unanticipated ICU admission or cardiac arrest event), it showed the higher EWS score the shorter adverse event interval ($p=0.044$). Furthermore, we tested the sensitivity and specificity of Modified EWS to predict patient deterioration with the warning threshold as scoring 3 group and scoring 5 group from 16,660 admission patients.

Results: The result showed that during the 16,660 admission patients, there are 706 patients who suffered from unanticipated ICU admission or cardiac arrest. There are 579 alerts prior adverse events in the scoring 3 group, and 362 alert times in the scoring 5 group. The sensitivity was 82.01% and 51.27% respectively. The specificity for patients without alert was 98.36% and 97.12%.

Conclusions: In hospital cardiac arrest rate was dropped from 0.43 to 0.25 per thousand admission days after going live of the system, the ratio of witnessed IHCA event and pre-signed DNR was raised as well. Nurses saved their 50 seconds in each TPR nursing record and 90 seconds to inform doctor for every alarm in average in terms of labor cost saving. Besides, nurses' satisfaction was up to 91%. The wireless system upload patients' physiological data automatically and inform physician incorporating the doctors' shifting system. It saves clinicians' time and eliminate human error. It helps to inform the whole medical team at the same time and alert about patient's deterioration. It improves team communication and delivery the prompt care for patient safety enhancement.

MP1-5: DIVERSITIES OF BEHAVIORAL TRAITS AND NEUROPSYCHOLOGICAL FUNCTION IN DIFFERENT SUBSTANCE ADDICTION

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Objective: There are various temperaments and personality characters that modulate the development of substance addiction. The pharmacological properties of substances would alter the homeostasis of brain function and influence the neuropsychological performance through different neurotransmissions which then facilitate diverse emotional and behavioral responses. Our goal is to assess the interaction between personality characteristics, neuropsychological performances and Stroop interference in alcoholics, heroin and amphetamine dependent persons.

Materials and Methods: Subjects with alcohol (N=95), heroin (N=82) and amphetamine (N=57) dependence were recruited. Diagnostic interview and questionnaires evaluating the psychiatric symptoms were done, followed by neuropsychological assessments of Stroop and Wisconsin card sorting tests (WCST). Differences between the study groups were analyzed by one-way ANOVA with Scheffe's test.

Results: The individuals with alcohol dependence had significantly higher scores of neurotic, dysphoric and impulsive traits ($P<0.001$) than heroin and amphetamine dependent groups. In Stroop tests, the alcohol dependent subjects also showed delayed response on incongruent naming interferences compared to both of heroin and amphetamine groups ($P<0.001$). Perseverative errors and responses of WCST were significantly higher in heroin than in alcoholic dependent persons ($P<0.01$).

Conclusions: Individuals with different substance dependence have distinct behavioral traits for developing addicted behaviors and had variant deficits of neuropsychological function.

MP1-6:

AN EVALUATION OF THE EFFECTIVENESS OF A MENTAL HEALTH PROMOTION PROGRAM FOR STAFF MEMBERS OF DIFFERENT DEPARTMENTS OF A GENERAL HOSPITAL

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Objective: Hospital staffs are exposed to high stress and resulting from heavy workloads and extended working hours. Little research has been done that explores the mental health statuses of employees of different hospital departments and studies the effects of the implementation of a mental health promotion program. This study aimed at comparing the health statuses of staffs of various hospital departments and the effectiveness of the continued implementation of health promotion programs over a period of four years.

Materials and Methods: Retrospective analysis of annually healthy survey data of physical illness and emotional distress from the staffs of different departments and evaluating the effectiveness of implementing "Mental Health Promotion Program" in last four consecutive years from 2013 to 2016 of a general hospital.

Results: The study collected 4701 copies of "Brief Symptoms Rating Scale (BSRS-5)". There is a marked and statistically significant difference in physical and mental health among staff members of different departments of a general hospital. Although a higher proportion of physicians appeared to experience chronic disease, self-perceived health in this group was significantly better than in the other groups. The percentage of nurses with emotional distress, regardless of the level of severity, was higher than in the other departments. However, after implementation of the mental health promotion program BSRS scores showed a statistically significant annual improvement.

Conclusions: The nurses was the highest group of emotional

distress among the different departments of hospital. Mental Health Promotion Program can reduce the psychological distress of nurse staff. Therefore, the nursing staff should be encouraged to participate in mental health promotion program.

MP1-7:

A QUESTIONNAIRE STUDY ON APPLICATION OF POPULAR SCIENCE TEACHING MATERIAL IN CURRICULUM COULD IMPROVE LEARNING JOY AMONG PRIMARY SCHOOL STUDENTS

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Objective: In order to popularization of medical and health care knowledge to the public. Dalin TzuChi Hospital has make great effort in the past decade to develop series multimedia health education teaching material with the integration of popular science. These teaching materials not only display in outpatient department but also upload to YouTube, hospital website and mobile APP. The public can access to these information easily. Our hospital also innovate teaching material in 3D animation in recent years. We wish that the integration of popular science in 3D animation can provide an interesting and clear knowledge to the public. Thus, this study aim to investigate the efficacy of knowledge transmission to the public via 3D animation.

Materials and Methods: We enrolled 214 years six students among three primary school in ChiaYi County into the study. We play a 3D animation title "familiar with your nasal function" to them. Then, we investigate the satisfaction of learning by using 3D animation and the learning efficacy via pretest and posttest questionnaire.

Results: A total of 214 questionnaire were collected, and 212 questionnaire were valid. The pretest and posttest questionnaire consisted of 10 question, which mainly ask about nasal functions, structures and diseases. The average score was 64.31% for the pretest and 85.56% for the posttest. A remarkable improvement were noted among the "recognized nasal structure II" and "recognized nasal external structure II" sections, which was 60% and 61%. The section "recognized the function of nasal discharge" also showed 29% improvement rate. According to the analysis, we discovered that even a primary school student also can learn complicated medical knowledge via the teaching in 3D animation. The satisfaction questionnaire consisted 12 questions. The overall satisfaction score was 78.25%. There were 83.9% and 84.7% of students agree that the 3D animation enhance their learning about nasal structure and diseases. 75.6% of students show interest in nasal knowledge after watching the 3D animation. There were 84.2% and 82% of the students satisfy with the 3D animation presentation and the narration.

Conclusions: According to the investigation result, the integration of teaching material in 3D animation can trigger learning motivation and improved learning efficacy. The knowledge transmission via 3D animation enhance comprehension and memories. In the future, we aim to enroll middle aged population for further investigation about the learning efficacy of teaching popular science in 3D animation.

MP1-8: THE IMPACT OF ANTIBIOTIC STEWARDSHIP PROGRAM IN CENTRAL-TAIWAN HOSPITAL: A SEGMENTED TIME SERIES ANALYSIS

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Objective: The amount of antibiotics use is related with bacteria resistant. Making policy in hospital is a best way to control the usage of antibiotics. In this study we use segmented time-series analysis to evaluate the import of the Antibiotic Stewardship Program (Total amount control of cephalosporin). **Materials and Methods:** We collect the in-patient antibiotic consumption from 2011/08 to 2014/12 in hospital. The policy (Total amount control of cephalosporin) was started at 2013/08. We defined two period by the policy: Uncontrolled period (UCP, 2011/08~2013/07) and Controlled period (CP, 2013/08~2014/12). The consumption of antibiotic was present in DID (Defined daily dose per 1000 inhabitants per day). Analysis of this study use Segmented time series analysis by SPSS ver. 18.

Results: We established Segmented time-series analysis model (simple periodic model, $R^2=0.713$), and Forecasting. Compare to antibiotic consumption in real world, the Total antibiotic DID of CP (means \pm SD, 903.92 \pm 23.95 vs. 879.28 \pm 33.52, $P<0.05$), and target group-cephalosporin DID (means \pm SD, 425.23 \pm 16.62 vs. 386.72 \pm 24.62, $p<0.05$). The slope of UCP and CP form total antibiotics (-0.21 vs. 0.19), and target group-cephalosporin (-0.68 vs. -1.50).

Conclusions: Time series analysis can help us understand the effect of policy. In our study, we can find the Antibiotic policy guideline (Total amount control of cephalosporin) can control the amount of total antibiotics usage, especially in cephalosporin. In cephalosporin usage, we also find the policy can decrease the trend of usage.

MP1-9: RELIABILITY AND VALIDITY OF ARTHRITIS SELF-EFFICACY SCALE IN PATIENTS WITH RHEUMATOID ARTHRITIS IN TAIWAN

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Objective: In addition to the proper medical therapy offered, the self-efficacy level manifested by patients played the potent role in the healthcare process as well. Many studies adopted the Arthritis Self-Efficacy Scale (ASES) to determine the level of self-efficacy among arthritis patients, nevertheless, this scale has not been clearly examined among patients with arthritic disorders in Taiwan. This study aimed to examine

the psychometric properties of Chinese version of ASES as applied to arthritis patients in Taiwan.

Materials and Methods: We used a backward translation approach to translate ASES into Chinese to ensure the accuracy of the translation. The Chinese version of ASES was then administered to 91 patients with rheumatoid arthritis as a hospital in southern Taiwan. Besides face validity, the construct validity, internal consistency, and split-half reliability were analyzed.

Results: The mean ASES score for participants was 52.69, which indicated a moderate level of self-efficacy (range, 10-100). Factor analysis with principal components analysis indicated that Chinese version of ASES scale is composed of three primary components that accounted for 77.56% of the variance. The item composition in each component was consistent with the conceptual framework of ASES. Reliability estimates, including Cronbach's alpha and split-half correlation coefficients, were 0.96 and 0.94, respectively.

Conclusions: Chinese version of ASES proved to be psychometrically sound for use for Taiwanese patients with arthritis disorders, which supported that this tool may be applied among them to evaluate self-efficacy capabilities prior to designing individualized care plans.

MP1-10: THE PROMOTION OF PALLIATIVE CARE AND ADVANCED CARE PLANNING

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Objective: The hospice and palliative care movement in Taiwan is more than 20 years, and in recent years it has been spread out from cancer to non-cancer disease. The Hospice Palliative Care Act defines people have right to reject cardiopulmonary resuscitation, and the promotion of advanced care planning (ACP) in the general population becomes important for achieving good death. The purpose of this study was to understand the point of view and belief of volunteers about the end of life care and ACP at four counties in Taiwan.

Materials and Methods: A cross-sectional anonymous survey was conducted for the volunteer in the community. There were total of 384 participants in the study. Data were analyzed by descriptive statistics. In addition, five focus group interviews (n=10) were used to explore the contents and process of ACP discussions.

Results: There was 22.7.0% of the participants who had completed the advance directive document, and the major reasons were death with dignity, do not want to waste medical resources, and reducing burden on family. Benefits from ACP were to prepare in advance, understand the patient's preferences for treatment, and communicate with others be loved. Barrier about ACP discussion were that patients refuse to talk; family do not know how to open this topic, lack of

communication skills, and worried patients' negative emotion. **Conclusion:** According to the research results, it is necessary to develop effective educational material and interventional program for facilitating the ACP discussion.

Moderated Poster-2

MP2-1:

ONE STAGE THREE STEPS LAPAROSCOPIC TREATMENT FOR STRANGULATED OBTURATOR HERNIA: TOTALLY EXTRAPERITONEAL REPAIR FOLLOWED BY INTESTINAL RESECTION BY HYBRID LAPAROSCOPIC AND OPEN SURGERY

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Objective: Although total extraperitoneal preperitoneal repair (TEP) is widely used for inguinal, femoral and obturator hernia treatment, but mesh repair is not routine used for strangulated hernia treatment if intestinal resection is required due to the risk of postoperative mesh infection. Two stage TEP repair in these cases was reported with good results. We reported a case with one stage three steps laparoscopic treatment for strangulated obturator hernia.

Materials and Methods: A 91 year-old female was diagnosed left incarcerated obturator hernia at other hospital one week ago. She was transferred to our hospital for second opinion. She has history of old TB, but no previous abdominal surgery. She complaint abdominal fullness and blood test showed leukocytosis (WBC 26510/uL). Abdominal CT revealed an incarcerated left obturator hernia. She received emergency intraperitoneal laparoscopic exploration under general anesthesia. Three ports were inserted at supraumbilical, and right and left lower lateral abdomen. Intraoperative findings showed incarcerated left obturator hernia, right obturator hernia and bilateral direct inguinal hernia were also found. After reduction the small intestine, strangulated part was found. Then we inserted a new port infraumbilical and created preperitoneal space for TEP repair with two pieces of flat malex mesh (15×10 cm in size) and no peritoneal tear. Finally, we extended the umbilical wound and the small intestine was brought out from the abdominal cavity and resected.

Conclusions: Two stage TEP repair for strangulated obturator hernia was reported with good results. But these patients were usually more than 70 years old, two stage operation may increase the risk of general anesthesia. One stage approach using laparoscopic totally extraperitoneal repair followed by open intestinal resection is a good method in these patients.

MP2-2:

LAPAROSCOPIC HELLER MYOTOMY IN ACHALASIA PATIENTS

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Objective: Achalasia is an uncommon swallowing disorder that affects about 1 in every 100,000 to 200,000 people.

Although the condition cannot be cured, the symptoms can usually be controlled with treatment. Pneumonic balloon dilatation (PD) and laparoscopic Heller myotomy (LHM) both proved to be durable treatment and have good treatment outcome after 10 years. Balloon dilatation may need repeated dilatation and occur 1.9 % (range 0-16%) of esophageal perforation. Compared to PD, LHM is more invasive but perforation could be directly repaired intraoperatively, usually requires only one surgery, and acid-reflux rate could be decreased with fundoplication.

Materials and Methods: From 2003 to 2013, patients underwent laparoscopic esophagomyotomy with or without fundoplication in our hospital were reviewed. Patient information were gathered by chart record and telephone interview was performed to determine long-term surgical outcome.

Results: (1) During 2003 to 2013, total 11 patients underwent laparoscopic esophagomyotomy in our hospital. Their diagnosis were proved to be esophageal achalasia by esophagogastroduodenoscopy. (2) Among all patients, 9 received Dor fundoplication, 1 did not undergo fundoplication and 1 received Nissen fundoplication. Mucosa perforation occurred in 2 cases and both were repaired intraoperatively, but one case eventually became severe leakage with intraabdominal abscess formation. Mean hospital day were 9.2 days after 2 cases with complication excluded. (3) Mean postoperative follow-up duration of all patients is 13 moths. All patients reported on telephone contact an excellent or good outcome as early as 2 months after operation.

Conclusion: Literature review showed 70 to 90 percent of people got relieved by surgery and sustained in about 85 percent and 65 percent 10 years and 20 years after the surgery respectively. We also obtained the similar results for short and long term up to 10 years. Therefore, we agree that LHM is a relative safe and durable procedure in treating esophageal achalasia.

MP2-3:

CADAVERIC STUDY OF PANCREATIC DUCT LEAK AFTER LAPAROSCOPIC DISTAL PANCREATECTOMY

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Objective: Although no significant difference was shown with respect to postoperative pancreatic fistula (POPF) between open surgery and laparoscopic surgery, the overall morbidity of laparoscopic distal pancreatectomy was significantly lower than that of open surgery (Raghuandan Venkat et.al in 2012). Literature as well as our clinical study showed that transection site (body) and staple sizes (>2.5 mm) were key factors contributing to the occurrence of POPF. We hypothesized to create a neck on the body of the pancreas by compressing before cutting using another clamp to allow optimal situation for 2.5mm staples to prevent POPF. Here is the first scientific study done on well preserved cadavers that was not possible in any other type of research.

Materials and Methods: Three adult cadavers were used, with each pancreas exposed for convenience but with equipment of laparoscopy to showcase assure that the technique can be done

laparoscopically. Each pancreas was cut at multiple sites: One cut at each neck and tail, and three cuts each on the body of the pancreas. Each cut different staple size (2.5 mm and 3.8 mm) and the clamping method (single or double). 2.5 mm and 3.8 mm staple sizes differ simply in sizes while the single clamping technique being the conventional way of cut and suture with clamp forceps and double clamping technique being the new technique introduced to recreate a "neck" on the body by compressing pancreas body to thinner layer to optimize the staples' effect. The leakage was checked by three steps: gross observation, probing with catheter, and methylene blue.

Results: Cuts performed with 2.5 mm staple and/or double clamping showed no leakage on both neck and body region. Cuts with both 3.8 mm staple and single clamping technique show leakage on body region but no leakage at the neck and tail. Degree of tissue crushing was more severe in single stapling with 2.5 cm staple.

Conclusions: The result had supported the hypothesis of double clamping method and smaller staple can reduce the chance of leakage and therefore reduce the chance of fistula after the operation. Both smaller staple usage and double clamping methods are sufficient to prevent leakage on their own, but the smaller staple and double clamping should be combined to prevent tissue crushing in thick pancreas for more secure outcome.

MP2-4:

THE α_1 -ADRENOCEPTOR MEDIATED SYMPATHETIC-SENSORY NERVE INTERACTION IN URINARY BLADDER OF AGING MICE

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Objective: The urinary bladder and mesenteric arteries are similarly innervated both by sensory (calcitonin gene-related peptide, CGRPergic) and adrenergic nerves. In mesenteric arteries, perivascular sympathetic-sensory (axo-axoal) nerve interaction had been proved to reciprocally regulate the vascular smooth muscle tone. Therefore, we examined the mouse bladder to determine whether there existed interaction between sensory and adrenergic nerve that regulate the motor function of detrusor muscle.

Materials and Methods: This study is designed to investigate the potential role of sensory and adrenergic nerve in regulation of phenylephrine-induced detrusor relaxation in male C57BL/6 mice. Urinary bladder from mice were isolated, cut into strips and mounted in the organ bath. The urinary bladder strip contractility is estimated using tissue bath myography.

Results: In the absence of active muscle tone, phenylephrine lead to contraction of urethra and bladder neck strip while relaxation of bladder body strips in a concentration-dependent manner. The phenylephrine-induced relaxation of bladder strips was inhibited by silodosin (α_1 -adrenoceptor), lidocaine (sodium-channel blocker), and capsaicin (CGRP depletor) suggesting phenylephrine acting on α_1 -adrenoceptor on sensory nerve to release unknown transmitters to activate adrenergic nerve as evident by reduced relaxation by lidocaine (sodium channel blockers). The

relaxation was drastically reduced when guanethidine (adrenergic neuronal blocker) and propranolol (β -blocker) were applied indicating the norepinephrine released from adrenergic nerve directly activate the β -adrenoceptors of detrusor muscle.

Conclusions: The results suggested that sensory nerve could regulate the motor function of detrusor muscle via adrenergic nerve.

MP2-5:

PENILE VENOUS STRIPPING SURGERY DESERVES A VIABLE OPTION FOR TREATING ERECTILE DYSFUNCTION EVIDENCED BY SALVAGING BENEFITS IN PATIENTS WHO UNDERWENT UNSUCCESSFUL VASCULAR INTERVENTIONS

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Objective: Various penile vascular interventions are always controversial for erectile restoration, particularly, in penile venous surgery. To explore whether penile venous stripping can enhance erectile function after preceding vascular intervention.

Materials and Methods: Between 1999 and 2017, 57 consecutive patients sought our medical attention after receiving vascular interventions elsewhere. The abridged 5-item version of the International Index of Erectile Function (IIEF-5) questionnaire and pharmaco-cavernosography were utilized to evaluate the patients. Of them 41 men in the treatment group underwent a salvaging penile venous stripping and the remaining 16 patients in the control group were free from this surgery. The procedure started from a circumferential incision to strip the deep dorsal veins and cavernosal veins. A median longitudinal pubic incision was made to complete the stripping proximally, whereas the para-arterial veins and circumflex veinules were just ligated segmentally with 6-0 nylon sutures. Finally, the wound was fashioned with 5-0 chromic sutures.

Results: The follow-up period ranged between 1.0 and 16.5 years. In term of IIEF-5 scoring, there was no significant difference between the two groups preoperatively (n=16, 7.3±1.8 vs. n=41, 7.5±2.0, p>0.13). There was significant difference between the two groups during the period of follow-up postoperatively (n=16, 6.2±1.9 vs. n=41, 13.9±4.2, p<0.01). In the treatment group, IIEF-5 scoring increased from an average of 7.5 to 13.9 postoperatively (p<0.01). Patients reported acceptable penile morphology. Furthermore, certain unexpected complications were recognized, such as embolization coils lodged in the cardiopulmonary avenues and electrocautery-induced fibrosis.

Conclusions: This penile venous stripping appears to be a viable option for those who have undergone prior vascular interventions.

MP2-6:

BLASSER OUTLET OBSTRUCTION IN MEN WITH PERSISTENT OVERACTIVE BLADDER SYMPTOMS AFTER MEDICAL TREATMENT FOR LOWER URINARY TRACT SYMPTOMS SUGGESTIVE OF BENIGN PROSTATIC HYPERPLASIA

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Objective: It is common to encounter a group of men with mixed lower urinary tract symptoms (LUTS). After initial medical treatment, the voiding symptoms improve, but overactive bladder (OAB) symptoms might persist. The aim of this retrospective study was to analyze the underlying lower urinary tract dysfunctions by video-urodynamic studies (VUDS) in men who have persistent OAB symptoms after initial drug therapy for LUTS.

Materials and Methods: The medical records of 614 men ≥ 40 years of age with LUTS and an IPSS of ≥ 8 were retrospectively analyzed. All enrolled patients had persistent OAB symptoms after medical treatment for at least 6 months. VUDS was performed to investigate the underlying bladder or bladder outlet dysfunction. Predictors of bladder outlet obstruction (BOO) by baseline urine flow metrics and prostate parameters were investigated.

Results: The final results revealed bladder neck dysfunction (BND) in 137/614 (22.3%), benign prostatic obstruction (BPO) in 246/614 (40.1%), detrusor overactivity (DO) in 193/614 (31.4%), and detrusor hyperactivity and inadequate contractility (DHIC) in 38/614 (6.2%) patients. Among the patients, 221/281 (78.6%) with a total prostatic volume (TPV) ≥ 40 mL had BOO, including 43/281 (15.3%) with BND and 178/281 (63.3%) with BPO. If we combined TPV ≥ 40 mL and $Q_{max} < 12$ mL/s as predictors of BOO, BOO was found in 176/215 (81.9%) patients including 34/215 (15.8%) with BND and 142/215 (66.0%) with BPO. In 102 patients with TPV < 40 mL and $Q_{max} \geq 12$ mL/s, 64 (62.7%) had DO.

Conclusions: BOO, including BND and BPO, comprise 62.4% (383/614) of men with residual OAB symptoms after initial medical treatment for LUTS. A combination of TPV ≥ 40 mL with $Q_{max} < 12$ mL/s strongly predicts BOO while a combination of TPV < 40 mL and $Q_{max} \geq 12$ mL/s suggests a high possibility of DO.

MP2-7: PREDICTION OF THE LONG-TERM SUCCESS OF SUBURETHRAL SLING BASED ON POSTOPERATIVE URODYNAMICS CHANGES IN WOMEN WITH STRESS URINARY INCONTINENCE

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Objective: Suburethral sling is currently the most effective and popular procedure for the surgical treatment of female stress urinary incontinence (SUI). The optimal tensioning of a sling is still an art. Overtensioning of the sling may lead to obstructive voiding symptoms. In contrast, the initial sufficient tension and proper support on the urethra may become ineffective after decades. In this study, we retrospectively analyzed the preoperative and postoperative urodynamics and correlated with surgical outcomes. We also tried to identify

the urodynamic parameters after sling surgery that can predict long-term cure rate.

Materials and Methods: We retrospectively reviewed the data of patients who received suburethral slings for female SUI with more than two year follow-up between 1989 and 2014. All patients underwent standardized urodynamic testing preoperatively as the baseline and postoperatively within 6 months. Suburethral slings in this study included pubovaginal slings and synthetic mid-urethral slings. Successful outcome was defined as negative cough and Valsalva stress test, no self-reported SUI symptoms, and no re-treatment for SUI. Surgical results, demographic characteristics, urodynamic parameters, and postoperative clinical manifestation were analyzed.

Results: A total 434 women received suburethral sling procedures between 1989 and 2014. The average age of surgery was 60.1, and the median follow-up was 8.1 years. Vaginal delivery and previous SUI operation had negative influence on cure rate ($p=0.029$ and 0.038 , respectively). Concomitant pelvic organ prolapse surgery was beneficial for success ($p=0.03$). At the last follow-up, 357 of 434 patients (82.3%) declared themselves cured. The efficacy of sling procedures at 3, 5, 10 and 15 years were 89%, 87%, 80% and 72%. No significant deterioration of objective cure rates was observed over time. Patients who met the criteria for surgical success, a significant interaction ($p < 0.001$) was detected between the baseline and postoperative urodynamic parameters, including maximum flow rate (Q_{max}), corrected Q_{max} (cQ_{max}), voided volume (Vol), post void residuals (PVR), voiding efficiency (VE), detrusor pressure at maximum flow rate (Pdet. Q_{max}) and bladder outlet obstruction index (BOOI). The trend suggests that increased bladder outlet resistance as measured by increased Pdet. Q_{max} , BOOI, PVR, and decreased Q_{max} , cQ_{max} , VE, Vol are associated with better SUI-specific outcomes. Women who achieved successful outcome had larger increases in BOOI compared with women who were classified as failure (19.6 ± 28.9 vs. 6.4 ± 19.8 , $p=0.014$). Changes in Q_{max} and Vol after surgery are also correlated to successes ($p=0.031$ and 0.002 respectively). Multivariate logistic regression model revealed five significant independent factors for SUI-specified outcome, which were Q_{max} , Vol, PVR, VE and BOOI. Women were very likely to have failed SUI-specific outcome with increased VE (OR 3.46, $p=0.033$), Q_{max} (OR 1.03, $p=0.039$), and Vol (OR 1.00, $p=0.007$). On the contrary, women were significantly less likely to have failed outcome with increased PVR (OR 0.99, $P=0.026$) and BOOI (OR 0.98, $P=0.017$). After adjusting confounding factors, the adjusted OR were more significant for BOOI (OR 0.97, $p=0.006$), PVR (OR 0.99, $p=0.021$), and VE (OR 3.77, $p=0.031$).

Conclusions: Suburethral sling has a durable long-term effect in our study. The subjective cure rate was 82.3%. Increased PVR, BOOI, Pdet. Q_{max} , and decreased Q_{max} , cQ_{max} , Vol, VE after sling surgery were correlated with SUI-specific success. Among these urodynamic parameters, BOOI, PVR and VE are most powerful to predict surgical outcome. Slight bladder outlet obstruction after sling operation provides long-term efficacy and success. It is therefore arguable whether "tension-free" is the principle for successful sling surgery. A little tension to increase bladder outlet resistance seems essential for achieving dryness.

MP2-8: ELECTRON MICROSCOPIC INVESTIGATION OF INTERSTITIAL CYSTITIS AND THEIR CLINICAL CORRELATION

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Objective: The electron microscopy (EM) characteristics in urothelium of interstitial cystitis/bladder pain syndrome (IC/BPS) and their clinical association are still unclear in previous studies.

Materials and Methods: Ten IC/BPS patients who were admitted for hydrodistention and 5 patients with stress urinary incontinence as control subjects were enrolled into this study. All patients provided detailed clinical histories and had undergone video urodynamic studies. Cystoscopic bladder biopsies were obtained and were processed for transmission EM (TEM) and scanning EM (SEM) analysis. The severity of the urothelium findings in EM was graded on a 4-point scale (0: none, 1: mild, 2: mild, and 3: severe). The EM urothelium characteristics difference between IC/BPS patients and control subjects with compared with chi-square test.

Results: In compared to control subjects, the IC/BPS urothelium had more severe defect of urothelial cell layers and integrity of umbrella cells in TEM ($p=0.045$ and 0.01). In SEM, umbrella cells pleomorphism and decreased deep folding in the umbrella cell membrane in the IC/BPS patients were more severe than that in control subjects ($p=0.022$ and 0.007). The patients with moderate to severe defect of umbrella cells integrity had more severe bladder pain and smaller maximal bladder capacity (MBC) (both $p=0.010$). Patients with moderate to severe defect of deep folding in cell membrane also had smaller cystometric bladder capacity and MBC ($p=0.037$ and 0.047).

Conclusion: This EM study revealed the urothelium defects in IC/BPS, especially in umbrella cells. Defects of umbrella cells may play an important role in the pathogenesis of IC/BPS.

MP2-9: ANTI-NEUROINFLAMMATORY EFFECTS OF THE CALCIUM CHANNEL BLOCKER NICARDIPINE ON MICROGLIAL CELLS: IMPLICATIONS FOR NEUROPROTECTION

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Objective: Nicardipine is a calcium channel blocker that has been widely used to control blood pressure in severe hypertension following events such as ischemic stroke, traumatic brain injury, and intracerebral hemorrhage. However, accumulating evidence suggests that inflammatory processes in the central nervous system that are mediated by microglial activation play important roles in neurodegeneration, and the effect of nicardipine on microglial activation remains unresolved.

Materials and Methods: We investigated the inflammatory responses caused by LPS plus IFN- γ and peptidoglycan,

the Gram-positive bacterium cell wall in BV-2 microglia. Levels of pro- and anti-inflammatory transcripts in response to extracellular stimuli were determined by quantitative PCR (qPCR). The ability of nicardipine to mitigate LPS plus IFN- γ -induced release of nitric oxide (NO), and the expression of inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX-2) were evaluated. The microglial migration was assessed by transwell insert. The anti-neuroinflammatory effects of nicardipine on microglial activation were evaluated in vivo and on motor behavior as well.

Results: We demonstrated that nicardipine significantly inhibits microglia-related neuroinflammatory responses. Treatment with nicardipine inhibited microglial cell migration. Nicardipine also significantly inhibited LPS plus IFN- γ -induced release of nitric oxide (NO), and the expression of inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX-2). Furthermore, nicardipine also inhibited microglial activation by peptidoglycan, the major component of the Gram-positive bacterium cell wall. Notably, nicardipine also showed significant anti-neuroinflammatory effects on microglial activation in mice in vivo.

Conclusions: The present study is the first to report a novel inhibitory role of nicardipine on neuroinflammation and provides a new candidate agent for the development of therapies for inflammation-related neurodegenerative diseases.

MP2-10: COMPARATIVE STUDY OF INTRAVESICAL BOTOX INJECTION FOR INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME: BLADDER BODY VERSUS TRIGONAL INJECTION

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Objective: Intravesical onabotulinumtoxinA (BoNT-A) injection is an effective treatment to relieve the symptoms of interstitial cystitis/bladder pain syndrome (IC/BPS). However, the therapeutic efficacy of different injection sites is not well known. In this study, we compared the therapeutic efficacy and the changes of urodynamic study between bladder body and trigonal BoNT-A injection.

Materials and Methods: This is a prospective randomized clinical trial of bladder body versus trigonal BoNT-A injection for patients with refractory IC/BPS. All patients included in this study were refractory to conventional treatment (oral NSAIDs, hyaluronic acid instillation, and cystoscopic hydrodistention) and with Visual Analog Scale for Pain (VAS) ≥ 3 . The patient with urinary tract infection, bladder outlet obstruction, post voided urine volume >150 mL, received intravesical BoNT-A injection in recent 6 months, and obvious ulcer lesion under cystoscopic were excluded. Under sedation, 100 U of BoNT-A diluted in 10 mL saline were injected in 20 bladder body sites or 10 trigonal sites. We evaluated the patients at 4th week and 8th week after the injection. The primary endpoint of this study was the changes of Visual Analog Scale for Pain, at the 8th week after the injection. Secondary endpoint included the changes of Global Response Assessment (GRA), urinary frequency, O'Leary-Sant score and Problem Index (ICSI, ICPI, OSS), quality of life (QoL), and urodynamic study at the 8th week after the injection.

Results: Twenty patients (Bladder body, N=10; Trigone, N=10) with refractory IC/BPS was included in this study. Patients in

Table 1: Changes of parameters after treatment

	Bladder (n=10)	Trigone (n=10)	P
Age	54.8±8.7	51.9±13.1	0.512
MBC	830.8±138.7	688.2±178.1	0.028*
Glomerulation	1.4±0.7	1.9±0.8	0.122
ICSI - B	13.4±3.7	11.3±4.2	0.043*
ICSI - 1 M	9.3±6.1	7.0±3.6	
ICSI - 2 M	9.5±4.7	5.7±4.3	
ICPI - B	12.6±2.9	10.9±3.5	0.084
ICPI - 1 M	7.1±5.4	7.0±4.1	
ICPI - 2 M	9.1±4.7	5.7±3.4	
OSS - B	26.0±6.2	22.2±7.1	0.047*
OSS - 1 M	16.4±11.0	14.0±7.3	
OSS - 2 M	18.6±8.6	11.3±5.9	
VAS - B	6.2±1.4	5.7±1.6	0.276
VAS - 1 M	3.1±2.7	3.2±1.6	
VAS - 2 M	3.7±1.8	2.8±1.9	
FBC - B	160.0±111.5	194.0±124.3	0.602
FBC - 1 M	242.2±77.9	276.0±161.1	
FBC - 2 M	278.2±155.9	316.7±167.6	
Frequency - B	17.3±11.3	13.8±6.5	0.844
Frequency - 1 M	13.7±8.8	12.6±6.6	
Frequency - 2 M	12.3±7.8	11.7±5.2	
Nocturia - B	3.9±1.5	3.6±1.1	0.064
Nocturia - 1 M	2.9±1.8	2.7±0.8	
Nocturia - 2 M	3.5±1.3	2.3±1.2	
Qmax - B	14.0±10.6	11.8±5.3	0.328
Qmax - 1 M	16.9±6.2	14.1±9.8	
Qmax - 2 M	13.3±8.4	20.2±8.7	
Volume - B	228.3±136.1	269.5±163.0	0.359
Volume - 1 M	239.9±64.6	234.8±210.6	
Volume - 2 M	195.4±115.3	326.8±229.5	
PVR - B	88.8±93.7	28.7±54.9	0.204
PVR - 1 M	114.4±141.4	35.2±50.5	
PVR - 2 M	84.9±81.0	30.4±27.5	
CBC - B	317.0±146.3	251.8±143.7	0.656
CBC - 1 M	354.3±146.3	228.2±243.5	
CBC - 2 M	280.3±110.8	357.2±246.2	
GRA - B	0	0	0.262
GRA - 1 M	1.0±1.1	1.0±0.9	
GRA - 2 M	0.8±0.9	1.3±1.1	

*Significant difference between group, $P < 0.05$. GRA: Global response assessment, CBC: Cystometric bladder capacity, MBC: Maximal bladder capacity, PVR: Postvoid residual urine volume, FBC: Functional bladder capacity, VAS: Visual analog scale, OSS: O'Leary-Sant score, ICSI: Interstitial cystitis symptoms index, ICPI: Interstitial cystitis problem index

both group had significant improvement in VAS, ICSI, ICPI, OSS and FBC (functional bladder capacity) after the injection. The changes of ICSI (9.5±4.7 vs 5.7±4.3, $p=0.043$) and OSS (18.6±8.6 vs 11.3±5.9, $p=0.047$) at 8th week after the injection had significant difference between two groups, which trigonal injection had more improvement. There was no significant difference in the changed of urinary frequency (day/night), voiding volume, post-void residual urine volume (PVR) and cystometric bladder capacity (CBC) from baseline to second month after BoNT-A injection at either bladder body or trigone [Table 1]. Seventy percent (N=7) patients in bladder body group and 50% (N=5) patients in trigone group decreased VAS

Table 2: The changes of visual analog scale and global response assessment after treatment

	Bladder (n=10), n (%)	Trigone (n=10), n (%)	P
VAS			
≥2	7 (70)	5 (50)	0.085
<2	3 (30)	5 (50)	
GRA			
≥2	2 (20)	4 (40)	0.264
<2	8 (80)	6 (60)	

VAS: Visual analog scale, GRA: Global response assessment

Table 3: Adverse effects

	Bladder (n=10), n (%)	Trigone (n=10), n (%)	P
None	1 (10)	5 (50)	0.293
UTI	0	1 (10)	
Dysuria	9 (90)	4 (40)	
UTI and dysuria	0	0	

UTI: Urinary tract infection

more than 2 points after the injection. Twenty percent (N=2) patients who received bladder body injection and 40% (N=4) patients who received trigonal injection had excellent improvement of the symptoms (GRA≥2) [Table 2]. The adverse effects were no significant difference between two groups [Table 3], but more patients in bladder body group had dysuria after injection.

Conclusions: Trigonal BoNT-A injection had better therapeutic effect than bladder body injection on relieving IC/BPS symptoms and less postoperative dysuria.

Moderated Poster-3

MP3-1:

THE SURGICAL OUTCOME OF SINGLE WOUND MINI-OPEN TRANSFORAMINAL LUMBAR INTER-BODY FUSION WITH AESCULAP SPINE MICRO LUMBAR DISCECTOMY SYSTEM FOR DEGENERATIVE LUMBAR SPONDYLOLISTHESIS

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Objective: The authors shared an idea of minimally invasive spinal surgery technique - Mini-open transforaminal lumbar interbody fusion by single wound with Aesculap Spine Micro Lumbar Discectomy system - to make surgical outcomes better in patients with lumbar spondylolisthesis.

Materials and Methods: We retrospectively traced 277 patients (90 male and 187 female) with lumbar spondylolisthesis who underwent microscope-assisted Mini-open transforaminal lumbar interbody fusion by single wound with Aesculap Spine Micro Lumbar Discectomy system from July 2005 until July 2016 with a minimum of 15 months follow-up (mean: 24 months). The perioperative clinical status of our patients was evaluated by the Oswestry disabling index (ODI)

scores and visual analog scale (VAS) scores for back and leg pain.

Results: The age of the patients was 60.62 ± 12.29 years. The ODI score before and after the operation was 66.19 ± 5.47 and 26.08 ± 4.66 , respectively. The postoperative hospital stay was 6.19 ± 3.47 days. The VAS scores of low back pain and leg pain were 81.2 ± 6.22 mm, 80.53 ± 6.54 mm preoperative and 20.25 ± 3.76 , 24.53 ± 4.09 postoperative, respectively. Our data revealed significant improvement in both ODI and VAS scores after surgical intervention ($p < 0.05$). Operation time was 83.2 ± 36.12 min. Intra-operative blood loss was 75.2 ± 106.22 mL. No perioperative complication (surgical site infection, hematoma, dural tear, neurological deterioration) was noted. All patients were able to walk within 3.2 ± 2.22 days.

Conclusions: A mini-open transforaminal lumbar interbody fusion by single wound with Aesculap Spine Micro Lumbar Discectomy system was an available procedure for treating lumbar spondylolisthesis. As the procedure minimized paraspinal soft tissue trauma, patients developed early ambulation and good functional outcomes.

MP3-2: LACK OF EFFICACY OF APPLICATION OF ANTIBIOTIC-LOADED BONE CEMENT FOR PREVENTION INFECTION IN PRIMARY TOTAL KNEE ARTHROPLASTY: A POPULATION BASE STUDY

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Objective: This study aims at investigating the effectiveness of antibiotic-loaded bone cement (ALBC) for preventing postoperative infection in patients undergoing total knee arthroplasty (TKA) with consideration of potential impact of heterogeneous among hospitals. Infection has remained being a rare but serious complication after TKA. However, the use of ALBC for reducing the occurrence of infection is debated. A large-scale observational study is needed to evaluate the effect of ALBC in reducing infection after TKA, as well as the safety.

Materials and Methods: We used the National Inpatient Database, which was provided by National Health Research Institutes. We conducted nation-wide retrospective cohort study. We included 16,108 TKA adult patients between January and November, 2012. There were 5,605 patients (34.8%) using ALBC. The postoperative 30-day infection and acute renal failure were compared. We adopted multi-level logistic regression models to adjust for potential confounding factors, such as gender, age, comorbidity, hospital levels (including medical centers, metropolitan hospitals, and local community hospitals), and the hospital surgical experience. The odds ratio (OR) of infection in ALBC group and 95% confidence interval (CI) were estimated.

Results: The overall proportion of ALBC use was 37.5%. When stratified by three hospital levels, the proportions were not different significantly (medical centers, 25.2%; metropolitan hospitals, 36.9%; local community hospitals, 39.8%; $p = 0.347$). The main compositions of ALBC were vancomycin (71.7%),

followed by gentamicin (30.7%), and cefuroxime (12.4%). Among patients with ALBC use, 83.8% patient had one type of antibiotics, nevertheless 16.0% patients had two combined antibiotics. As for prophylactic antibiotics, the most commonly used type was 1st cephalosporins (98.9%), followed by aminoglycosides (12.0%), and glycopeptides (4.8%). We found the duration of 1st cephalosporins usage was shorter in ALBC group than non-ALBC group (1.37 vs 1.42, $p < 0.001$). When stratified by hospital levels, the compositions and drug use days of prophylactic antibiotics were different among the two groups. We found that the use of ALBC could not reduce the postoperative 30-day infection. Adjusted for potential confounding factors, there was no statistically significant beneficial effect of ALBC in reducing infection regarding three hospital levels (medical centers: OR=1.25, 95% CI: 0.49-3.18; metropolitan hospitals: OR=0.54, 95% CI: 0.28-1.03; local community hospitals: OR=0.83, 95% CI: 0.30-2.26). When conducting multi-level logistic regression model, there remained no favorable effect of ALBC in reducing postoperative infection (OR= 0.80, 95% CI: 0.50-1.26, $p = 0.329$). For risk of acute renal failure for ALBC users, the sample size ($n = 7$) is too small to evaluate.

Conclusions: There was no significant benefit of ALBC in reducing postoperative 30-day infection in patients undergoing TKA.

MP3-3: INCREASED RISK OF TOTAL HIP AND TOTAL KNEE REPLACEMENT SURGERY IN PATIENTS WITH ANKYLOSING SPONDYLITIS: A SECONDARY COHORT ANALYSIS OF THE NATIONAL HEALTH INSURANCE RESEARCH DATABASE

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Objective: Osteoarthritis is generally considered to be a degenerative condition associated with aging as a result of cartilage loss over time, but recent research suggested that inflammatory mediators released by cartilage, bone, and synovium may play a role in the pathogenesis of osteoarthritis. Ankylosing spondylitis (AS) is a chronic, systemic, inflammatory autoimmune disease that typically affects the axial skeleton and peripheral joints. We speculated that AS might increase the risk of secondary osteoarthritis and therefore, the aim of this study was to investigate the risk of osteoarthritis-related surgery, including total hip replacement surgery (THRS) and total knee replacement surgery (TKRS) in patients with AS using data from the National Health Insurance Research Database (NHIRD).

Materials and Methods: We used the Longitudinal Health Insurance Database 2000 data subset (2000–2012) of the NHIRD to identify patients with AS (ICD-9-CM code 720.0). Each patient was frequency matched, in a ratio of 1 to 5, for sex, age intervals, and index year with patients without AS to assemble a comparison cohort. All patients were followed until the end of the follow-up period or the occurrence of a principal inpatient diagnosis of osteoarthritis (ICD-9-CM code 715.xx) together with THRS (ICD-9-CM procedure code 81.51) or TKRS (ICD-9-CM procedure code 81.54). Poisson regression

models were used to assess the incidence rate ratios (IRR) for THRS and TKRS adjusting for the potential confounders.

Results: A total of 3,462 patients with AS and 17,310 patients without AS were included in this study. A significantly higher incidence of THRS was observed in the AS cohort compared with the comparison cohort (IRR 5.91; $P < 0.001$). When stratified by sex, the IRRs for THRS and TKRS were significant only among male patients (adjusted IRR 12.59; $P < 0.001$ and adjusted IRR 1.89; $P = 0.036$, respectively).

Conclusions: This secondary cohort analysis showed that male patients with AS had a significantly higher risk of receiving osteoarthritis-related THRS and TKRS.

MP3-4:

FEMALE BLADDER NECK DYSFUNCTION: A VIDEOURODYNAMIC ANALYSIS OF FEMALE VOIDING DYSFUNCTION

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Objective: To analyze women with voiding dysfunction by videourodynamic study (VUDS), especially the role of bladder neck in voiding and the effectiveness of treatment.

Materials and Methods: This study retrospectively analyzed the VUDS characteristics from 1914 women who suffered from lower urinary tract symptoms and refractory to medication from August 1996 to Jan 2014. The age distributions, VUDS parameters, presence of detrusor overactivity and treatment modalities in patients diagnosed with bladder neck dysfunction (BND) were analyzed.

Results: Based on VUDS findings, female voiding dysfunction included bladder dysfunction ($n=1048$, 55%), bladder outlet dysfunction ($n=810$, 42%) and normal VUDS tracing ($n=56$, 3%) [Table 1]. The VUDS findings of bladder outlet dysfunction included BND ($n=100$, 12.3%), poor pelvic floor relaxation ($n=336$, 41.5%), dysfunctional voiding (DV, $n=325$, 40.1%), cystocele ($n=19$, 2%) and urethral stricture ($n=30$, 4%). Compared with normal tracing group, BND patients had significantly lower first sensation of filling, full sensation and voided volume, maximum flow rate (Qmax); but higher post-void residual volume, voiding detrusor pressure, and bladder outlet obstruction index (all $p < 0.05$). Detrusor overactivity was noted in 46 (46%) BND patients. These urodynamic parameters, however, were not significantly different from patients with DV. High pressure BND had a greater bladder outlet obstruction degree but low pressure BND had a lower voiding efficiency [Table 2]. Alpha-blocker improved 62.3% of Qmax whereas transurethral incision of the bladder neck (TUI-BN) improved 63.1% of Qmax in patients who failed medical treatment ($p < 0.05$).

Conclusion: BND comprises 12.3% of women with bladder outlet dysfunction. The VUDS characteristics are in accordance with that in bladder outlet obstruction and the obstruction site is the bladder neck. Video urodynamic study is the mainstay diagnostic tool to diagnose BND in women. Alpha-blockers and TUI-BN are effective in improving Qmax in BND patients.

Table 1: The videourodynamic parameters among female patients with normal tracing, bladder neck dysfunction, dysfunctional voiding and other bladder outlet obstruction

	Normal (n=56)	BND (n=100)	DV (n=325)	BOO (n=49)	P
Age	54.0±14.3	63.9±17.1	61.1±16.5	57.8±16.7	0.0001
FSF (mL)	167±71.6	137±76.9	130±69.0	141±57	0.0001
FS (mL)	290±103	208±101	197±95.0	214±80	0.0001
CBC (mL)	508±120	358±176	300±145	297±109	0.0001
Pdet.Qmax (cmH ₂ O)	17.3±8.23	39.3±24.0	46±18	49±29	0.0001
Qmax (mL/s)	24.1±7.82	6.06±5.64	9.4±6.1	7.0±4.6	0.0001
Vol (mL)	489±114	144±143	179±125	166±120	0.0001
PVR (mL)	19.5±28.8	213±186	121±123	131±109	0.0001
BOOI	-31.0±17.5	27.2±26.3	27±23	35±30	0.0001
VE	0.96±0.05	0.41±0.37	0.62±0.31	0.54±0.30	0.0001
Compliance	84.8±72.1	60.8±70.0	63±77	59±46	0.0001
DO (%)	0	46 (46.5)	195 (60)	22 (45)	0.0001

Data were expressed as mean±SD or n (%). Cystocele ($n=19$) and urethral stricture ($n=30$), BOOI=Pdet.Qmax-2 × Qmax. BND: Bladder neck dysfunction, DV: Dysfunctional voiding, BOO: Bladder outlet obstruction, CBC: Cystometric bladder capacity, DO: Detrusor overactivity, FS: Full sensation, FSF: First sensation of filling, Pdet.Qmax: Detrusor pressure at Qmax, PVR: Postvoid residual, Qmax: Maximum flow rate, Vol: Voided volume, VE: Voiding efficiency, BOOI: bladder outlet obstruction index, SD: Standard deviation

Table 2: The comparison of videourodynamic parameters between patients with normal tracing and bladder neck dysfunction of different voiding pressure

	Normal (n=56)	LPBND (n=45)	HPBND (n=55)	P
Age	53.98±14.32	63.52±17.68	64.24±16.83	0.839
FSF (mL)	166.82±71.60	135.18±61.10	138.11±88.00	0.852
FS (mL)	290.30±103.05	214.36±88.79	202.20±110.95	0.556
CBC (mL)	167.68±39.57	127.66±63.62	109.93±52.93	0.133
Pdet.Qmax (cmH ₂ O)	17.32±8.23	19.00±10.93	55.55±18.65	0.000
Qmax (mL/s)	24.14±7.82	5.48±6.31	6.53±5.04	0.362
Vol (mL)	488.64±114.29	118.09±127.49	165.07±152.52	0.105
PVR (mL)	19.48±28.76	268.75±208.76	168.05±153.47	0.007
BOOI	-30.97±17.52	8.04±15.09	42.49±23.12	0.000
VE	0.96±0.05	0.32±0.32	0.50±0.33	0.010
Compliance	84.80±72.06	68.60±62.86	54.53±75.19	0.323
DO (%)	0	12 (27.3)	34 (61.8)	0.001

Data was expressed as mean±SD or n (%). BOOI=Pdet.Qmax-2 × Qmax. LPBND: Low-pressure bladder neck dysfunction, HPBND: High-pressure bladder neck dysfunction, CBC: Cystometric bladder capacity, DO: Detrusor overactivity, FS: Full sensation, FSF: First sensation of filling, Pdet.Qmax: Detrusor pressure at Qmax, PVR: Postvoid residual, Qmax: Maximum flow rate, Vol: Voided volume, VE: Voiding efficiency, BOOI: bladder outlet obstruction index, SD: Standard deviation

MP3-5:

THE ROLE OF ASSESSING NUTRITIONAL STATUS AND APPLYING ADEQUATE INTERVENTIONS IN HEAD AND NECK CANCER PATIENTS TREATED WITH COMBINED MODALITIES

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Objective: Malnutrition plays a key role in the morbidity of head and neck cancer patients receiving surgery, chemotherapy, radiotherapy, or combined-modality therapy. While these obstacles are often due to the cancer itself, the common treatments for head and neck cancer patients treated, including surgery, radiotherapy (RT), and chemotherapy, also lead to changes that further complicate and challenge oral intake. Some patient may discontinue therapy due to complication, use nutrition assessment to screen out the high risk of malnutrition patient, give nutrition intervention and continue follow up, decrease the risk of body weight loss and discontinue therapy. Assessing and maintaining adequate nutrition are essential in managing head and neck cancer patients who were treated with combined modalities.

Materials and Methods: Herein, we used the scored Patient-Generated Subjective Global Assessment (PG-SGA) to assess nutritional status in head and neck cancer patients. Adequate nutrition interventions were applied for patients with malnutrition. From Jan. 2016 to Dec. 2016, we collected 102 patients in outpatient clinic of Regional Teaching Hospital pre-treatment nutrition status in head and neck cancer patients who were treated with combined modalities of surgery, radiotherapy (RT), and/or chemotherapy. PG-SGA was used for assessment. Data collection and analysis were performed by an oncological-specific dietitian. Several items were collected for assessment, such as, medical history (e.g., weight change, dietary intake, and gastrointestinal symptoms) and physical examination (e.g., loss of subcutaneous fat, muscle wasting).

Results: A total of 103 hospitalized head and neck cancer patients were included, with a median weight of 62.0 (± 13.7) kg. Of these, 36 patients (35.2%) had body weight loss $>5\%$ in the last three months before assessment. More notably, 24 patients (23.3%) had a severe body weight loss of $>7.5\%$. The PG-SGA score are lower in Stage I and Stage II Patient (69% of PG-SGA score <3). The patient in Stage IV has higher PG-SGA score (35.5% of PG-SGA score ≥ 9). After assessment and nutrition intervention, and continue follow up body weight and intake, the average body weight loss percentage in treatment period form 36.8% decrease to 6.77%. According to the subjective global assessment (PG-SGA), 38 patients (37.2%) were well nourished, and 64 patients (62.7%) were malnourished (severely undernourished, 30 patients [29.4%]; moderately undernourished, 34 patients [33%]); Adequate nutrition interventions were applied for patients with undernourished status. After our interventions, patients' nutrition statuses were adequately maintained or slightly improved gradually.

Conclusions: Use PG-SGA to assessment the nutrition state of head and neck cancer patient, give early nutrition intervention to improve nutrition condition of patient, may improve the body weight loss.

MP3-6: GAMMA KNIFE RADIOSURGERY FOR NONFUNCTIONING PITUITARY ADENOMAS: THE EFFECTIVENESS AND COMPLICATIONS

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Objective: Nonfunctioning pituitary adenoma (NFPA) is the most common type of pituitary adenoma. Gamma Knife radiosurgery (GKRS) is an alternative therapeutic strategy for these patients. In this report, we evaluated the efficacy and safety of low-dose Gamma Knife radiosurgery for nonfunctioning pituitary adenomas. We also evaluated the hormone changes before and after GKRS.

Materials and Methods: We retrospectively reviewed outcome data in 67 patients with NFPAs treated with GKRS from 2004-2014. We excluded patients who had follow-up less than 6 months. Chi-square test were used for comparing categorical variables. T-test was used for comparing continuous variables. Wilcoxon sign rank test was used to evaluate the hormone changes after GKRS. Cox proportional hazard model was used for calculating multivariable risks factors. Variables were considered statistically significant if the p value was <0.05 .

Results: 43 patients met our selection criteria. 31 patients received surgery before GKRS and 12 patients received upfront GKRS. The median age was 52 years (range 19-81 years) old with a median follow-up of 71 months (range 17-147 months). The male to female ratio was 0.79 (19:24). The median tumor volume was 3.5 ml (range 0.29-41.6 mL). Patients received a median tumor margin dose of 12 Gy (range 12-16 Gy) at 50% isodose line. The overall tumor control rate was 97.7%. Six patients achieved complete tumor response after GKRS. There was no optic nerve injury (0%) and low risk (11.6%) of hypopituitarism. Initial tumor volume was a risk factor of hypopituitarism after treatment (including surgery and GKRS) ($p=0.05$). Higher GKRS marginal dose had higher complete response rate ($p=0.046$). Thyroid stimulating hormone (TSH) was the only hormone we found to have significant change before and after GKRS ($p=0.032$). We found that after GKRS, TSH level increased (median 1.145 before GKRS to 1.972 after GKRS).

Conclusion: In this study, GKRS resulted in long-term control of nonfunctioning pituitary adenomas in 97.7% of patients. Acceptable complication rate of panhypopituitarism was noted compared to previous studies. Low-dose (12-14 Gy) GKRS is effective and safe to selective patients with NFPAs. TSH level was increased after GKRS which had not been reported before.

MP3-7: STROKE RISK AFTER OUTPATIENT DIAGNOSIS OF BENIGN VERTIGO VARIED ACROSS SPECIALTIES

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Objective: Vertigo can be the primary or even exclusive symptom of cerebrovascular disease, and stroke presenting with vertigo is often misdiagnosed with benign inner ear disease. It is well-known that people discharged with “benign vertigo” have higher stroke risks than general population. However, the stroke risk among patients discharged with “benign vertigo” has never been compared across medical specialties.

Materials and Methods: Patients diagnosed with first incident vertigo (ICD-9-CM 386.x, 780.4) in outpatient departments (OPD) were identified from the National Health Insurance Research Database of Taiwan (2002-2009). In defining “benign vertigo”, we excluded the patients (i) who were referred to emergency department or admitted as inpatients on the same day of index OPD visit; (ii) who had stroke-related diagnosis (ICD-9-CM 430-438) at the index OPD visit; (iii) who were diagnosed with “vertigo of central origin” (ICD-9-CM 386.2) at the index visit. All included patients were classified based on the specialty of the physician providing diagnosis as follows: (1) neurology; (2) ENT, (3) internal medicine, (4) general medicine, and (5) other specialties. All patients were followed until stroke, death, withdrawal from database, or current end of database (December 30, 2012) for a minimum follow-up period of 3 years. 180-day and 3-year stroke incidence was analyzed. Risks of stroke were compared between neurology and other specialties using Cox proportional hazards model.

Results: We studied 178,981 patients (neurology: 7,140; ENT: 20,098; internal medicine: 36,279; general medicine: 80,838; other specialties: 34,626). Short-term (180-day) stroke incidences were 0.48% in neurology, 0.24% in ENT, 0.58% in internal medicine, 0.44% in general medicine and 0.20% in other specialties. Long-term (3-year) stroke incidences were 1.29% in neurology, 0.86% in ENT, 1.81% in internal medicine, 1.61% in general medicine, and 0.73% in other specialties. The unadjusted hazard of stroke in neurology was higher than ENT (HR=1.47, 95% CI=1.25-1.72), other specialties (HR=1.71, 95% CI=1.48-2.00), and lower than internal medicine (HR=0.76, 95% CI=0.66-0.87) and general medicine (HR=0.83, 95% CI=0.73-0.95). After adjusting for age, gender, urban status, geographic area, and cardiovascular risks, adjusted stroke hazard in neurology became comparable with ENT (aHR=1.10, 95% CI=0.93-1.25) and other specialties (aHR=0.97, 95% CI=0.83-1.13), but was still lower than internal medicine (aHR=0.80, 95% CI=0.69-0.92) and general medicine (aHR=0.85, 95% CI=0.83-1.13).

Conclusion: Populations seeking care for vertigo differ across specialties, resulting in different stroke risks after diagnosis of benign vertigo. When adjusted for demographic factors and overall cardiovascular risk, the risks of stroke are still different across specialties.

MP3-8: FACTORS ASSOCIATED WITH THE ACCEPTANCE OF DISABILITY AMONG PATIENTS WITH HEAD AND NECK CANCERS

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Objective: Multimodality treatments are useful in managing patients with head and neck cancers. However, post-treatment morbidities are not uncommon, such as disabilities of speech and swallowing. Hence, the present study intended to assess factors that affected acceptance of post-treatment disabilities in head and neck cancer patients.

Materials and Methods: Structured questionnaires were used to assess acceptance of disease and disabilities among head and neck cancer patients. From Aug. 2012 to Jul. 2013, a total of 251 cases were enrolled. Host, cancer, and treatment factors were included as questionnaire items. Disease and disability acceptance were quantified by using a verified Chinese-version simplified scale. Linear regression was used for analysis.

Results: Overall, the mean score of disease and disability acceptance was 88.64 (range, 32-128). After regression analysis, several factors were associated with high levels of disease and disability acceptance, as follows: cases with long-term disease burden ($t=2.01$; $p=0.04$), patients with the highest education level of at least senior high school ($t=2.51$; $p=0.02$), those who were not single living ($t=2.92$; $p<0.01$), and cases had single-modality treatments ($t=-3.61$; $p<0.01$).

Conclusions: Based on our analysis, medical care givers are able to early identify high-risk patients and then to initiate psycho-social interventions accordingly. Qualities of patient life and medical care could be improved simultaneously.

MP3-9: ANDROGEN RECEPTOR CAN INCREASED THE NUMBER OF MACROPHAGES IN TUMOR MICROENVIRONMENT TO FACILITATE UPPER URINARY TRACT UROTHELIAL CANCER PROGRESSION

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Objective: Androgen receptor (AR) plays a role in the development and progression of upper urinary tract urothelial cancer (UUTUC). The Tumor associated macrophages (TAMs) facilitate tumor growth, progression and metastasis by producing growth factors, proteases and cytokines. Here we characterize and define the role of infiltrated macrophage cell in UUTUC. We investigated macrophages could supply contextual signals that serve to promote cancer progression and how they are regulated.

Materials and Methods: Transwell migration assay was performed on UUTUC cells to check if they can induce macrophage infiltration. To observe the effect of conditioned media (CM) from BFTC 909 or 7630 co-cultured with THP-1 cell culture, we performed cells growth, migration and invasion assay. We investigated status of AR in BFTC 909 or 7630 cells and THP-1 cells if affects recruited macrophages' and

promote BFTC 909 or 7630 cells growth, migration and invasion. In addition, cytokine profile by cytokine array and IHC staining of CCL5 expressing cells in BFTC pWPI or BFTC hAR cell xenograft tumor in nude mice were examined.

Results: Here we found human UUTUCs might increase macrophages than surrounding normal urothelial cells. Further investigation found that the androgen receptor (AR) not only enhanced UUTUC cells capacity to recruit more macrophages, it could also promote the macrophages-enhanced UUTUC cells growth, migration and invasion. AR might function through modulating CCL5 expression to influence UUTUC progression. Besides, interruption of CCL5 partially reversed the AR-regulated macrophage-enhanced UUTUC progression.

Conclusions: These results suggest that macrophages recruitment may enhance UUTUC progression, modulated by AR-CCL5 signal to establish a tumor microenvironment with recruited macrophages and cytokines to facilitate cell growth, migration and invasion.

MP3-10: VEGETARIAN DIET AND BLOOD PRESSURE IN SUBJECTS WITH ASYMPTOMATIC PROTEINURIA: A COMMUNITY DATABASE ANALYSIS

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Objective: The vegetarian diet may improve blood pressure control in past studies, but the protective effect is still unknown in asymptomatic subjects with proteinuria. We aim to access the association between blood pressure (BP) in individuals who with vegetarian diet and proteinuria.

Materials and Methods: This cohort study collected the database from subjects who were older than 40 years old and received physical checkup in the health examination center in Taipei Tzu Chi Hospital. Diets were assessed at baseline by a self-report questionnaire and categorized into 2 vegetarian dietary patterns (vegan, lacto-ovo vegetarian), and omnivore dietary pattern. From September 05, 2005 to December 31, 2016, there were 2,900 (7.4%), 5,951 (14.7%) and 31,650 (78.1%) individuals who were vegean, lacto-ovo vegetarian and omnivore diets, respectively. Analysis was conducted using multivariate linear regression model with no intercept in BP, controlling for important demographic and lifestyle confounders.

Results: Vegan diet and lacto-ovo vegetarians group were associated with lower mean systolic BP (-5.0 mmHg; 95% CI, -4.2 to -5.9, $p<0.001$; and -0.9 mmHg, 95% CI, -0.3 to -1.6 mmHg, $p=0.005$, respectively) and lower diastolic BP (-3.2 mmHg; 95% CI, -2.6 to -3.9, $p<0.001$; -1.8 mmHg; 95% CI, -1.3 to -2.3), $p<0.001$, respectively) as compared with omnivore diet group. The subjects with proteinuria had higher systolic BP (5.8 mmHg; 95% CI, 5.0 to 6.6 mmHg, $p<0.001$) and diastolic BP (3.0 mmHg; 95% 2.4 to 3.5, $p<0.001$). In interaction analysis, while subjects with proteinuria, the vegan and lacto-ovo vegetarians diets had additional

set-off effects on lower systolic BP (-4.1 mmHg 95% CI, -1.3 to -6.9 mmHg, $p=0.004$; -3.0 mmHg 95% CI, -1.3 to -4.2 mmHg, $p=0.004$) and lower diastolic BP (-3.5 mmHg; 95% CI, -1.4 to -5.5, $p<0.001$; -0.6 mmHg 95% CI, -1.7 to -0.6, $p=0.35$).

Conclusions: Vegetarian diets are associated with lower BP in asymptomatic proteinuric subjects. These diets could be a useful non-pharmacologic way for reducing BP.

Moderated Poster-4

MP4-1: HUMAN CD40L-ACTIVATED B CELLS AS ANTIGEN-PRESENTING CELLS

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Objective: B cells are key to adaptive immunity. Activated B cells can present antigens to T cells, as well as differentiate into memory B cells and plasma cells. Because primary antigen-presenting cells (APC) numbers from individuals are limited, the *in vitro* expanded activated B cells represent a useful alternative APC source for studying human T cell responses against harmful antigens. However, current methods in human B cell cultures is limited in the capacity to support proliferation by mature B cells.

Materials and Methods: CD40 signaling is essential for B cell activation. To support the efficient activation and proliferation of both naïve and memory human B cells, CD40 ligand (CD40L)-expressing stromal cells are used with the supplement of cytokines known to support B cell activation. The activation and proliferation of B cells in culture are analyzed. *In vitro* expanded B cells are evaluated for their ability to present allo- and microbial antigens to T cells.

Results: This CD40L-based system is feasible to induce extensive proliferation of primary B cells, with approximately 10⁶ fold increases in numbers after 16 days. The culture-derived (CD) B cells from naïve B cells undergo isotype switching and differentiate into plasmacytes. These B cells can be cryopreserved and retain the ability to proliferate and differentiate upon recovered into culture. Significantly, proliferating CD B cells express high levels of APC markers, including MHCII molecules and CD80, and CD86. The antigen-presenting features of CD B cells are further confirmed by their ability to induce T cell responses in the presence of allo- and microbial antigens. Additionally, antigen-specific memory B cells can be activated and expanded in this CD40L-based system; these cultured B cells are highly effective APC.

Conclusions: This culture method supports the activation and proliferation of both naïve and memory B cells isolated from human peripheral blood. CD B cells increase surface expression of APC markers and function as APCs that induce T cell proliferation. Furthermore, the ability to culture antigen-specific memory B cells provides a platform for studying the interaction between cognate T and B cells and the corresponding lymphocyte repertoire.

MP4-2: LIPC VARIANTS AS THE GENETIC DETERMINANTS OF ADIPOSITY STATUS, VISCERAL ADIPOSITY INDICATORS AND TYG INDEX RELATED PARAMETERS MEDIATED BY SERUM TRIGLYCERIDE LEVELS

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Objective: Visceral adiposity indicators and the product of triglyceride (TG) and fasting plasma glucose (FPG) (TyG) index related parameters are known as useful surrogate markers for insulin resistance (IR), however, their genetic determinants have not been previously reported. Pleiotropic associations of LIPC variants were noted with lipid profiles and atherosclerotic cardiovascular diseases. We aimed to investigate LIPC polymorphisms as the genetic determinants of adiposity status, visceral adiposity indicators, TyG index related parameters and insulin resistance.

Materials and Methods: A total of 592 participants from Taiwan were genotyped for three LIPC single nucleotide polymorphisms (SNPs).

Results: SNPs rs2043085 and rs1532085, were significantly associated with body mass index, waist circumference, the lipid accumulation product (LAP), the visceral adiposity index (VAI) and the TyG index related parameters, including the TyG index and TyG with adiposity status (TyG-body mass index [BMI]) and TyG-waist circumference index [WC]), whereas SNP rs1800588 was only significantly associated with the TyG index. The associations became insignificant after further adjustment for serum triglyceride levels. No significant association was noted between all the studied LIPC SNPs and IR status.

Conclusions: Our data revealed pleiotropic association of the LIPC variants with various IR surrogated markers, which are mediated by serum triglyceride levels.

MP4-3: EXTRACELLULAR SIGNAL-REGULATED KINASE MEDIATES EBASTINE-INDUCED HUMAN FOLLICLE DERMAL PAPILLA CELL PROLIFERATION

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Objective: Ebastine is a second-generation histamine H1 receptor antagonist, which used to ease allergic inflammation. Ebastine has also shown to affect hair loss; however, the immunoregulatory effect of ebastine cannot completely exclude the possibility of spontaneous hair regrowth in ebastine-treated mice.

Materials and Methods: Human follicle dermal papilla cells (HFDPCs), expressed at the hair follicle base that are crucial for the induction of hair follicle growth, were used for this study. Cell viability and growth were assessed using the WST-1 assay and bromodeoxyuridine incorporation, respectively. Cell-cycle regulatory proteins, apoptotic related proteins as well as epidermal growth factor receptor signal-regulated proteins were determined using the western blot analyses.

Results: Ebastine was found to significantly increase the proliferation of HFDPCs. The expression levels of cell-cycle regulatory proteins and an anti-apoptotic protein were increased in ebastine-treated HFDPCs. Further, elevated levels of phospho-AKT and phosphor-p44/42 extracellular signal-regulated kinase (ERK) were observed in ebastine-treated HFDPCs. Completely blocking ERK kinase but not AKT inhibitor reversed ebastine-mediated HFDPC growth.

Conclusions: The results from our present study suggest that the regulation of HFDPC cell proliferation by ebastine might be directly involved in hair regrowth through the ERK signaling pathway to combat alopecia areata.

MP4-4: LONG-LASTING CHANGES IN 5-HT_{2A} RECEPTOR AFTER BINGE METHAMPHETAMINE EXPOSURE IN MICE

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Objective: The multiple administration of high dose methamphetamine (MA) to animals in a single-day produces damage to dopaminergic and serotonergic neurons and psychosis-like behaviors similar to those observed in MA abusers. The present study aimed to investigate the effects of binge MA exposure on 5-HT_{2A} receptors, the subtype of serotonin receptors putatively involved in psychosis.

Materials and Methods: ICR male mice were treated with MA (4×5 mg/kg) or saline at 2 h intervals. Recognition memory and social behaviors were sequentially evaluated by a novel location recognition test, a novel object recognition test, a social interaction and a nest-building test to confirm the persistent cognitive and behavioral impairments after binge dosing regimen. Subsequently, a hallucinogenic 5-HT_{2A/2C} receptor agonist 2,5-dimethoxy-4-iodoamphetamine (DOI)-induced head-twitch, molecular and electrophysiological responses were evaluated. Finally, the levels of 5-HT_{2C}, 5-HT_{1A}, 5-HT_{2A} and mGlu2 receptors in the medial prefrontal cortex (mPFC) were determined.

Results: Binge MA exposure elicited recognition memory defects, reduced social behaviors, and increased DOI-induced head-twitch response, c-Fos and Egr-2 expression and field potentials in the mPFC. Furthermore, MA exposure increased 5-HT_{2A} and decreased mGlu2 receptor expression in the mPFC, whereas 5-HT_{2C} and 5-HT_{1A} receptors were unchanged. These data show that the increased behavioral, molecular and electrophysiological responses to DOI might be associated with an upregulation of 5-HT_{2A} receptors in the mPFC after binge MA regimen.

Conclusions: Recognizing the biochemical alterations that parallel the behavioral changes in a mouse model of MA binge exposure may assist in targeting therapies for treatment of MA-related psychiatric disorders.

MP4-5: MATRIX METALLOPROTEINASES-2 AND -9 IN PATIENTS WITH CHRONIC HEPATITIS

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Objective: Matrix metalloproteinases (MMPs) degrade extracellular matrix and could play an important role in the pathogenesis of chronic hepatitis. MMP-2 and MMP-9 are the major MMPs found in circulation. This study evaluated the manifestations of matrix metalloproteinase-2 (MMP-2) and MMP-9 in patients with chronic hepatitis.

Materials and Methods: Plasma MMP-2 and MMP-9 levels were measured in 139 patients with CH and 139 age- and sex-matched healthy controls.

Results: Patients with chronic hepatitis had higher MMP-2 concentrations than the controls ($P < 0.0001$). MMP-2 concentrations were higher in 1) female and male patients, 2) males with hepatitis B virus (HBV) infection, and 3) females and males with hepatitis C virus (HCV) infection compared to the corresponding female and male controls ($P \leq 0.01$, all). They were higher in males with HBV-related hepatitis and in females and males with HCV-related hepatitis than in the corresponding female and male alcohol-related ($P < 0.05$, all). Patients with HCV infection or higher plasma alanine aminotransferase (ALT) levels had lower MMP-9 concentrations compared to controls ($P < 0.05$, all). Females with alcoholic hepatitis or higher ALT levels had lower MMP-9 levels than female controls ($P = 0.001$ and 0.03 , respectively). There was a significant positive correlation between MMP-2 and ALT levels in males with HCV-related hepatitis ($P = 0.007$).

Conclusions: Plasma MMP-2 and -9 levels in patients with chronic hepatitis correlated with disease etiology and plasma ALT levels. MMP-2 possibly serves as a non-invasive serum biomarker in male patients with HCV-related chronic hepatitis.

MP4-6: A HIGH SEROPREVALENCE OF KAPOSI'S SARCOMA HERPES VIRUS ALREADY PRESENT IN CHRONIC HEPATITIS STAGE BEFORE CIRRHOSIS

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Objective: A high seroprevalence of Kaposi's sarcoma herpes virus (KSHV) in patients with mild cirrhosis is significantly associated with hepatitis activity. Cirrhosis is almost derived from chronic hepatitis. However, the prevalence of KSHV infection in patients with chronic hepatitis has not been documented.

Materials and Methods: Blood samples from 129 patients with chronic hepatitis and 129 age-matched healthy controls were collected and analyzed for lymphocyte, monocyte, and platelet counts, hepatitis B surface antigen (HBsAg), anti-hepatitis C virus (anti-HCV), KSHV antibody and DNA, and alanine aminotransferase (ALT).

Results: Mean monocyte and platelet counts were significantly higher and lower in patients than in healthy controls ($P = 0.021$ and < 0.0001 , respectively). Seropositive rate for KSHV antibodies was significantly greater in patients (32.6%) than in controls (20.9%, $P = 0.035$), particularly in patients with HCV infection, or higher plasma ALT levels, or both ($P = 0.004$, 0.011 , and 0.0009 , respectively). The mean age of KSHV seropositive patients (60.3 years) was significantly older than that of seronegative patients (52.3 years) ($P = 0.0009$). Antibody titers for KSHV in patients also exceeded those in controls ($P = 0.018$). All participants were negative for KSHV DNA.

Conclusions: A significantly high KSHV seroprevalence is already present in patients with chronic hepatitis before the development of cirrhosis, particularly in patients with HCV infection, or higher plasma ALT levels, or both. Advancing age seems to play an important role in KSHV seroprevalence in patient with chronic hepatitis.

MP4-7: GENE CONVERSION BETWEEN β -CRYSTALLIN B2 AND ITS PSEUDOGENE IN A FAMILY OF CERULEAN CATARACT

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Objective: Cataract is the commonest cause of blindness in the world. Its etiology is multifactorial, and therefore most patients of senile cataracts do not help identify those genes and enzymes important for lens clarity and metabolism. This study investigated genetic analysis in a three-generation family with autosomal dominant cerulean cataract.

Materials and Methods: After obtaining informed consent, we performed linkage analysis in an Taiwanese three-generation family. Thirteen of the twenty-two family members are affected. Linkage analysis was performed after exome sequencing. Bi-directional sequence analysis of nested

polymerase chain reaction those candidate genes further confirmed the genetic cause.

Results: A LOD score of 3.85 was found at chromosome 22. Sequencing of exon 6 showed a C→T mutation at nucleotide position 475 (Q155X). This stop mutation truncates the protein by 51 residues. Sequencing of exon 6 showed an additional variant, a C→T substitution at nucleotide position 483. Q155X and 483C→T were not found on 50 chromosomes of normal Indian subjects, excluding either from being a frequent polymorphism.

Conclusions: The Q155X mutation causes the distinct cerulean cataract formation in this Taiwanese family.

MP4-8:

ANTI-LEUKEMIC EFFECTS OF NOBILETIN AND 5-DEMETHYLNobiletin ON THE DOWN-REGULATION OF c-KIT PROTO-ONCOGENE EXPRESSION IN ACUTE LEUKEMIA CELLS

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Objective: Acute myeloid leukemia (AML) is characterized by abnormal accumulation of immature blood cells in bone marrow and peripheral blood. It has been reported that mutation or overexpression of the c-KIT protein, a receptor tyrosine kinase (RTK), plays a tumorigenic role in several cancers including AML. Nobiletin (NOB) and 5-demethylnobiletin (5-demethyl NOB), the natural citrus polymethoxyflavones, have been found to possess various potential properties, including antioxidant, anti-inflammation, and anti-cancer activities. This study focused on the anti-leukemic effects of both compounds and the detailed mechanism for c-KIT gene regulation.

Materials and Methods: The cell viability of AML cells was determined using MTT assay. Cell cycle distribution was assessed using propidium iodide staining followed by flow cytometry analysis. The mRNA levels of c-KIT, CD11b and β -actin genes were performed by RT-Q-PCR method. Total protein of c-KIT was determined using western blot and its surface expression was examined using FITC-conjugated anti-c-KIT antibody by flow cytometry analysis. The effect of a combination treatment of cytarabine and NOB (or 5-demethyl NOB) was measured using MTT assay.

Results: We found that NOB and 5-demethyl NOB possessed anti-proliferative effects in leukemia cells. In addition, both compounds suppressed c-KIT mRNA and protein expression in THP-1 cells. We further demonstrated the cell growth was inhibited in c-KIT-knockdown THP1 cells, suggested that NOB and 5-demethyl NOB-mediated c-KIT down-regulation is associated with anti-proliferation. Our data showed the MAPK/ERK activation is involved in this c-KIT suppression. Finally, we showed that NOB and 5-demethyl NOB enhanced the cytarabine (AraC)-induced growth inhibition and synergized with cytarabine administration in THP-1 leukemia cells.

Conclusions: Our current findings suggest that NOB and 5-demethyl NOB are novel inhibitors for c-KIT gene and potentially as chemoprevention agents for AML treatment.

MP4-9:

FLUORODEOXYGLUCOSE UPTAKE IN ADVANCED NON-SMALL CELL LUNG CANCER WITH AND WITHOUT PULMONARY LYMPHANGITIC CARCINOMATOSIS

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Objective: To assess the correlation between advanced non-small cell lung cancer (NSCLC) with or without pulmonary lymphangitic carcinomatosis (PLC) and fluorodeoxyglucose (FDG) uptake, and to evaluate its effect on survival outcomes.

Materials and Methods: We retrospectively reviewed 157 patients with NSCLC and grouped them according to the presence or absence of PLC (PLC and non-PLC groups, respectively). Patient characteristics and positron emission tomography measurements, including mean and maximum standardized uptake values (SUVmean and SUVmax, respectively), metabolic tumor volume (MTV), and total lesion glycolysis (TLG), were evaluated for their effect on overall survival (OS) and progression-free survival (PFS).

Results: The PLC group included 55 patients, and the non-PLC group included 102 patients. The SUVmean, SUVmax, MTV, and TLG values were lower in the non-PLC group. Survival was better in the non-PLC group. No clinical factors were significantly associated with OS or PFS in the non-PLC group. The only PET parameters that differed between the 2 groups were primary lung cancer TLG ($p=0.04$) and whole body TLG ($p=0.01$). In the PLC group, primary lung tumor TLG was the only significant predictor of PFS. In the non-PLC group, whole-body TLG was a significant predictor of OS.

Conclusions: The data presented here suggest that an assessment of primary lung tumor TLG would be useful for predicting PFS but not OS among patients with PLC. In addition, whole-body TLG could be useful in predicting both PFS and OS in patients without PLC.

MP4-10:

ADAM9 ENHANCES LUNG CANCER METASTASIS VIA SUPPRESSING MICRORNA EXPRESSION

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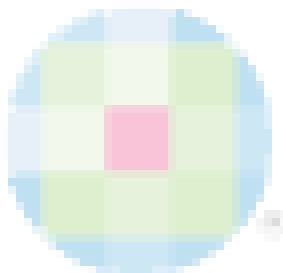
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Objective: MicroRNAs (miRNAs) are endogenous noncoding short RNAs which regulate gene expression in various biological and pathological functions. Many studies have shown that miRNAs play an important role in cancer biology and progression. Our previous studies have shown that a disintegrin and metalloprotease domain 9 (ADAM9) enhanced lung cancer metastasis via upregulating the expression of a pro-migratory protein, CUB domain containing protein 1 (CDCP1). The associated mechanism remained to be solved.

Materials and Methods: The study methods included lung cancer cell culture, quantitative reverse transcription PCR, plasmid transfection, time-lapse migration assay, and lung cancer animal model.

Results: We found that ADAM9 suppressed the expression of one of the miRNAs, hence enhancing CDCP1 expression, which in turn promoted lung cancer progression with increases in lung cancer cell survival, mobility, and anoikis resistance. Overexpression of the miRNA suppressed CDCP1 expression, resulting decreased lung cancer cell viability, with a reduction in tumor cell survival and migration ability. Mutation on the 3'-untranslated region of CDCP1 prevented the downregulation of CDCP1 expression by the miRNA, indicating that the miRNA directly regulates CDCP1 expression. CDCP1 expression was increased after inhibition of the miRNA, resulting in increases in lung cancer cell survival, and mobility. In mice study, overexpression of the miRNA suppressed the tumor metastasis, and improved their survival rate.

Conclusions: Our study has demonstrated a specific mechanism of cancer progression regulated by ADAM9 via the suppression of the miRNA and the associated CDCP1 overexpression.





Non Discussion Poster

NDP-1: PARTIAL NEPHRECTOMY FOR DUPLEX KIDNEY WITH ATOPIC URETER DRAINING IN THE VAGINA

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Objective: We report a successful experience of treating a rare case with complete ureteral duplication and ectopic ureter terminating at the vagina accompanied with ureteral stone.

Materials and Methods: A 59-year-old lady presented with fever and left flank pain for several days. CT showed left complete duplication of ureter and ectopic ureter terminating at the vagina with dilated ureter, which was obstructed by a tiny stone. Percutaneous pigtail was inserted into the dilated renal pelvis of upper moiety under CT guided. Partial nephrectomy without total ureterectomy was performed smoothly 3 weeks later. Post-operation course was uneventful.

Results: The patient was treated successfully with partial nephrectomy for the upper moiety. Uterus and lower segment of ureter are left in situ. There is no recurrence of urinary tract infection after the operation.

Conclusions: Partial nephrectomy only can treat the duplex kidney with ectopic ureter terminating at the vagina. Completely removal or reconstruction and reimplantation of the ectopic ureter may be unnecessary in selected patients.

NDP-2: WNT/ β -CATENIN SIGNALING PATHWAY REGULATES THE NON-TUMORIGENESIS OF HUMAN EMBRYONIC STEM CELLS CO-CULTURED WITH HUMAN UMBILICAL CORD MESENCHYMAL STEM CELLS

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Extensive human embryonic stem cells (hESCs) researches have been done in recent decades. Today, hESCs could be derived into almost all cell types of human body. However, one of the limitations of hESCs derived human cells for clinical application is the risk of teratoma formation. In our previous study, the hESCs co-cultured with the mesenchymal stem cells derived from the Wharton's jelly of human umbilical cord (HUCMSCs) could maintain their pluripotency but lost their ability of teratoma formation in NOD/SCID mice. However, the regulating signaling pathways were still unclear.

Therefore, we intended to find a supplement which inhibits the tumorigenesis of hESCs by investigating the regulating signaling pathways in this study. Compared to mouse embryonic fibroblasts (MEFs), HUCMSCs conferred a down-regulation of WNT/ β -catenin/c-myc signaling as a feeder for hESCs. Adding the β -catenin antagonist (FH535 or DKK1), could down-regulate β -catenin and c-myc expressions and suppresses tumorigenesis (3/14 vs. 4/4, $p=0.01$) in hESCs fed with MEFs. Whereas the β -catenin enhancer (LiCl or 6-bromoindirubin-3'-oxime) could up-regulate the expressions and has a trend ($p=0.056$) to promote tumorigenesis (2/7 vs. 0/21) in hESCs fed with HUCMSCs. Moreover, adding FH535 to the hESCs/MEFs did not affect the pluripotency of hESCs as revealed by the differentiations markers for the three germ layers. Taken together, this study revealed WNT/ β -catenin/c-myc is an important signaling pathway conferring tumorigenicity of hESCs and explain the non-tumorigenic feature of HUCMSC co-culture. β -catenin inhibitor could be used to improve the tumorigenicity while not compromising the pluripotency of hESCs.

NDP-3: ANDROGEN RECEPTOR CAN EXPANDS THE NUMBER OF CANCER STEM CELLS IN UPPER URINARY TRACT UROTHELIAL CANCER

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Objective: Androgen receptor (AR) plays a role in the development and progression of upper urinary tract urothelial cancer (UUTUC). Here we investigated whether AR stimulates UUTUC by expanding the population of cancer stem cells (CSCs), which are a particular cells within cancer responsible for tumor progression, metastasis and drug resistance.

Materials and Methods: We compared BFTC 909 cells with or without the addition of AR on their CSC population with flow cytometry, colony formation and sphere formation assay. To observe the effects of AR on BFTC 909 cells, qRT-PCR was used to detect the expression stemness genes and miRNAs. Western blotting was also performed to examine EMT (epithelial-mesenchymal transition) related proteins. In vivo tumor formation was also performed with the implantation of cancer cells in nude mice and IHC was done.

Results: We found that the addition of AR of UUTUC cells (BFTC 909 cell line) significantly increased the population of CSC in clonogenicity, sphere formation, the expression of stemness genes and CSC-related miRNA profile as well as EMT related proteins. Furthermore, in a nude mice model, the addition of AR in UUTUC cells also increased the tumor formation.

Conclusions: This study demonstrates that AR contributes to

UUTUC by expanding the CSC population. These findings suggest AR to be a potential therapeutic target for urothelial carcinomas in the future.

**NDP-4:
ETOPOSIDE INDUCES PANCREATIC β -CELLS CYTOTOXICITY VIA THE JNK/ERK/GSK-3 SIGNALING-MEDIATED MITOCHONDRIA-DEPENDENT APOPTOSIS PATHWAY**

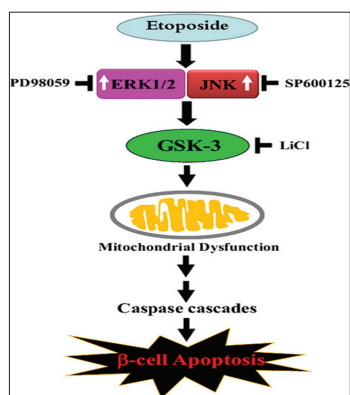
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Objective: Etoposide is widely used in the treatment of the different types of tumors such as pancreatic cancer. However, etoposide also causes several unwanted side-effects in normal viable cells, including pancreatic β -cells, which are vulnerable to chemical-induced injuries, and the molecular mechanisms underlying etoposide-induced apoptosis are still unclear.

Materials, Methods and Results: Here, the results showed that in RIN-m5F cells (a β -cell-derived cell line), the number of viable cells was significantly decreased after 24 h of etoposide treatment and underwent mitochondria-dependent apoptotic signals accompanied by mitochondrial dysfunction, and increases in the population of sub-G1 hypodiploid cells and apoptotic cells, caspase-3 activity, and the activation of caspase cascades. Etoposide also increased the phosphorylation levels of glycogen synthase kinase (GSK)-3 β in treated RIN-m5F cells. Pretreatment with LiCl, a GSK-3 inhibitor, prevented etoposide-induced mitochondria-dependent apoptosis and GSK-3 protein phosphorylation in RIN-m5F cells. Furthermore, exposure of the cells to etoposide induced the phosphorylation of c-Jun N-terminal kinase (JNK) and extracellular signal-related kinase (ERK) 1/2 but not p38-MAPK, which was suppressed by the specific JNK inhibitor (SP600125) and ERK1/2 inhibitor (PD98059), respectively. Additionally, pretreatment with both SP600125 and PD98059 effectively suppressed etoposide-induced β -cell cytotoxicity, apoptosis, and GSK-3 protein phosphorylation; however, LiCl did not reverse JNK and ERK1/2 phosphorylation.

Conclusion:



**NDP-5:
PROTocatechuic ACID ATTENUATES ACUTE LUNG INJURY INDUCED BY LOWER LIMB ISCHEMIA-REPERFUSION IN RATS**

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Objective: Lower limb ischemia/reperfusion (I/R) occurs in a variety of clinical settings such as traumatic arterial injury and abdominal aortic aneurysm surgery. Reperfusion of the ischemic limbs can cause remote organ injury, especially the lungs. Oxidative stress and inflammation are known to play crucial roles in the development of acute lung injury (ALI) induced by limb I/R. Protocatechuic acid (PCA), a phenolic acid, has been shown to possess anti-oxidative and anti-inflammatory capacities. We sought to elucidate whether PCA could attenuate ALI induced by lower limb I/R.

Materials and Methods: Adult male Sprague-Dawley rats were randomized to receive sham operation, sham operation plus PCA, I/R, or I/R plus PCA, respectively (n=6 in each group). Limb I/R was induced by applying rubber band tourniquets high around each thigh for 3 h followed by reperfusion for 24 h. After euthanization, degrees of lung injury, inflammation, and oxidative stress were examined.

Results: Rats receiving I/R had significant increased pulmonary concentrations of malondialdehyde, as well as interleukin 6, macrophage inflammatory protein 2, and prostaglandin E2, indicating that limb I/R induced significant pulmonary oxidative stress and inflammation. Moreover, the histological assays, including histopathology, neutrophil infiltration and lung water content, confirmed that lower limb I/R leads to ALI. It should be noted that PCA significantly attenuated the pulmonary concentrations of oxidative stress and inflammatory markers as well as improved histological findings in rats receiving I/R.

Conclusions: PCA attenuates ALI induced by lower limb I/R in rats. The mechanisms may involve its effects on reducing pulmonary oxidative stress and inflammation.

**NDP-6:
MYOSTATIN PROPEPTIDE GENE DELIVERY BY GENE GUN AMELIORATES MUSCLE ATROPHY IN A RAT MODEL OF BOTULINUM TOXIN-INDUCED NERVE DENERVATION**

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Objective: Muscle atrophy is a common symptom after nerve denervation. Myostatin propeptide, a precursor of myostatin, has been documented to improve muscle growth. However, the mechanism underlying the muscle atrophy attenuation effects of myostatin propeptide in muscles and the changes in gene expression are not well established. We investigated the possible underlying mechanisms associated with myostatin propeptide gene delivery by gene gun in a rat denervation muscle atrophy model, and evaluated gene expression patterns.

Materials and Methods: In a rat botulinum toxin-induced nerve denervation muscle atrophy model, we evaluated the effects of wild-type (MSPP) and mutant-type (MSPPD75A) of myostatin propeptide gene delivery, and observed changes in gene activation associated with the neuromuscular junction, muscle and nerve.

Results: Muscle mass and muscle fiber size was moderately increased in myostatin propeptide treated muscles ($p < 0.05$). And enhancement of the gene expression of the muscle regulatory factors, neurite outgrowth factors (IGF-1, GAP43) and acetylcholine receptors was observed. Our results demonstrate that myostatin propeptide gene delivery, especially the mutant-type of MSPPD75A, attenuates muscle atrophy through myogenic regulatory factors and acetylcholine receptor regulation.

Conclusions: Our data concluded that myostatin propeptide gene therapy may be a promising treatment for nerve denervation induced muscle atrophy.

NDP-7:

ANTIPSYCHOTIC DRUGS INDUCE NUCLEAR PROTEIN REGULATION IN B35 NEURONAL CELLS

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Objective: Antipsychotic drugs (APDs) were mentioned that could induce gene and protein expression regulation in human and also in rat brain. Various evidences suggested that APDs induced protein regulations might be closely related to the control of psychotic symptoms in treating mental disorders. Most of the nuclear proteins are at a relatively low quantity in the cell. This makes nuclear proteins not easy to be detected because highly abundant proteins in cells would mask the signals of rare protein in most proteomic detection systems. Also, the accuracy and sensitivity of the detection equipment limit the ability in detecting rare proteins in whole cell protein extract.

Materials and Methods: We fractionated the nuclear protein from the APD-treated B35 neuronal cells. iTRAQ reagents labeled nuclear proteins were then separated and detected by using LC/MS/MS. Differentially expressed nuclear proteins detected by LC/MS/MS were then further validated in APD-treated B35 cells, C6 cells and also rat cortex by immunoblotting, immunofluorescent cell staining and/or immunohistochemistry staining.

Results: There were 25 proteins that have been identified by LC/MS/MS. ADP/ATP translocase 2 (SLC25A5), Heat shock cognate 71 kDa protein (HSPA8), Histone H1.2 (HIST1H1C), Histone H3.3 (H3F3B), Histone H4 (HIST1H4B), Non-POU domain-containing octamer-binding protein (NONO), Nucleolin (NCL), Nucleophosmin (NPM1), Prelamin-A/C (LMNA), Plectin-1 (PLEC), Vimentin (VIT) and 40S ribosomal protein S3a (RPS3A) are 12 proteins showed significant (p -value <0.05) expression fold changes in B35 cells after treating cells with at least one of the three APD. The western blot results suggested APDs induced protein expression changes in B35 cells were consist to the results revealed by LC/MS/MS. Heat shock cognate 71 kDa protein and vimentin expression did not affected by all three APDs in C6 cells. Immunofluorescent cell staining analysis demonstrated that all the three APDs can induce similar protein expression

regulation revealed by LC/MS/MS. We also examined protein expression regulation affected by APDs in sub-chronic and chronic APD-treated rat cortex by using western blot and immunohistochemistry staining analysis.

Conclusions: The results suggested that the findings of proteomic analysis in APD-treated B35 cells could be represented in APD-treated rat cortex.

NDP-8:

N-BUTYLIDENEPHTHALIDE UPREGULATES REDD1 EXPRESSION WHICH MEDIATES MTOR INHIBITION AND GROWTH INHIBITION IN GASTRIC CANCER

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Objective: This study aims to investigate the mechanism of how n-butylidenephthalide (BP) inhibits the growth of human gastric cancer cells.

Materials and Methods: The anti-proliferative effect of BP on human gastric cancer cells was determined by MTT assay. The genes induced by BP-treatment were analyzed by NGS and validated by real-time PCR and western blot. The antitumor effects of BP were evaluated *in vivo* in an AGS xenograft animal model.

Results: BP caused gastric cancer cell death in a time- and dose-dependent manner. BP induced apoptosis via the activation of mitochondria intrinsic apoptosis pathway. The NGS analysis revealed that BP upregulated REDD1 expression after treatment with AGS cells. BP induced REDD1 expression and inhibited the downstream gene expression of mTOR signaling pathway. We used RNA interference to demonstrate that mTORC1 activity and growth inhibition by BP is attenuated by the knock-down of REDD1. In AGS xenograft mouse model, tumor growth was significantly inhibited by the BP treatment as compared with the non-treatment group.

Conclusions: BP induced the REDD1 expression and inhibited the mTOR signal pathway in gastric cancer cells. BP caused gastric cancer cell death through the activation of mitochondria-intrinsic pathway. Furthermore, BP significantly inhibited the *in vivo* growth of AGS xenograft tumors, suggesting that BP could serve as a potential therapeutic agent against gastric cancer.

NDP-9:

NEXT-GENERATION SEQUENCING IDENTIFIES MOLECULAR SIGNATURES IN RADIORESISTANT ORAL SQUAMOUS CELL CARCINOMA AS POTENTIALLY MOLECULARLY TARGETED RADIOSENSITIZING STRATEGIES

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Objective: Oral squamous cell carcinoma (OSCC) is the most common malignant neoplasm in Taiwan. Radiation therapy (RT) is the current standard adjuvant approach for OSCC patients. Unfortunately, efficacy of RT is limited by intrinsic radioresistance of cancer cells, which correlates with an increase in the risk of tumor local recurrence and metastasis. Therefore, finding the molecular signatures that can predict the outcome of RT and can be targeted to sensitize radioresistant cells is essential for improving RT efficacy in oral cancer. In this study, we used a Next-Generation Sequencing approach to identify radioresistance-associated biomarkers in radioresistant OSCC cells and patient-derived cells from human OSCCs. The profile could provide useful information as a validated biomarker for radiosensitization to improve RT efficacy.

Materials and Methods: We established oral cancer patient-derived primary tumor cells, and they were irradiated at a dose of 10 Gy to investigate the effects of radiation response. Survival fractions were evaluated by using clonogenic assay of parent (OML1) and radioresistant (OML1-R) cells exposed to increasing doses of irradiation (IR). The next-generation sequencing-based RNA-Seq identified different gene-expression profiles of OML1 and OML1-R cells at 24 hours after exposure to 4 Gy IR, and screened significantly up- and down-regulated genes between the both cell lines. Candidate genes were further confirmed by quantitative real-time PCR.

Results: Three cell lines derived from human OSCCs had been reported for their different radiosensitivity. Cells derived from patients who had lymph node metastasis (N+) or local recurrence after radiotherapy revealed a higher colony growth after exposure to 10 Gy of IR when compared with those cells derived from the Patient 1 (i.e., cT2N0M0). Similarity, colony formation markedly increased in the OML1-R cell population when compared with parental cells after IR exposure. These data showed that radiotherapy resistance may be associated with tumor progression. We selected and verified 19 significant radiation-altered genes in two types of OSCC cells with different radiosensitivity (i.e., radioresistant OML1-R cells and radiosensitive OML1 cells). These genes were potentially predictive biomarkers of RT resistance, especially six selected genes of DNA repair (n=3) and cell adhesion (n=3). Further function-determining experiments were on going.

Conclusions: Based on these results, we preliminarily identified 19 candidate genes linked with radioresistance, and they provided novel therapeutic targets to overcome radioresistance of OSCC. Further translation studies should be conducted to confirm their clinical roles.

NDP-10:

APPLICATIONS OF IN SILICO STRUCTURAL ANALYSIS ON THE STUDIES OF SPECIES-SPECIFIC BINDING BETWEEN HEPATITIS C VIRUS ENVELOPE PROTEIN 2 AND HUMAN CELL SURFACE PROTEIN CD81

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Objective: Hepatitis C virus (HCV) is a highly species-specific pathogenic virus that infects only humans and chimpanzees. Previous studies have indicated that the HCV infection requires the interactions between its E2 protein and the host surface protein CD81, and these HCV E2/CD81 interactions have been suggested to play a key role in host-specificity of HCV. This poster shows our recent efforts on the investigation into the details of the HCV E2 interacting with human and rat CD81, at molecular and sub-molecular levels, using bioinformatic approaches, trying to point out the crucial factors for the species-specificity which might be of great help in future developments of the direct-acting drugs for HCV treatments.

Materials and Methods: *In silico* approaches including homology modeling, molecular docking, molecular dynamic simulations and binding free energy calculations were employed on the study of the binding of HCV E2 onto human or rat CD81s, and *in vitro* surface plasmon resonance measurements and peptide/cell flow cytometry were applied for the validations of the *in silico* results.

Results and Conclusions: The *in silico* results revealed two binding regions on the HCV E2 loop domain important for the E2 interactions with CD81s, with only one of which is the determinant factor for human-specific binding. Free energy calculations and *in vitro* experiments suggested that the E2/CD81 binding process should follow a two-step model involving sequential bindings of these two E2 binding regions and conformational changes of HCV E2 upon binding to human CD81. The amino acid sequence of the human-specific HCV E2 region could be considered as a candidate template for the development of HCV-inhibiting peptides. The study demonstrated also indicates a potentially powerful methodology for the studies of complicated and possibly dynamic virus-host interactions.

NDP-11:

COMPARISONS OF ANTHROPOMETRIC MEASUREMENTS AND MAJOR PHYSICAL EXAM ITEMS AMONG ELEMENTARY STUDENTS WITH DIFFERENT BODY MASS INDEX CATEGORIES IN HUALIEN COUNTY: A RETROSPECTIVE COHORT STUDY

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Objective: We investigate the effects of childhood obesity on anthropometric measurements, major physical examination including annual height/weight gain, poor vision, dental caries, squatting difficulty, undescended testis, proteinuria and hematuria by comparing students with different body mass index (BMI) categories in 3-year interval.

Materials and Methods: In our retrospective cohort study, 1717 students who maintained the same BMI categories during their physical examination at 1st and 4th grade of elementary school were enrolled. Demography data including anthropometrics and major physical exam items mentioned above in

2012 and 2015 school year were collected. BMI and its association with height/weight gain, poor vision, dental caries, squatting difficulty, proteinuria and hematuria were examined.

Results: Of 1717 subjects, 52.7% were male, 69.2% lived in urban area, and 74.5% belonged to normal BMI group. Other BMI groups included underweight (4.1%), overweight (7.5%) and Obesity (13.8%). Obesity associated with male gender ($p=0.005^*$), higher annual height ($p<0.001^*$) and weight ($p<0.001^*$) gain, squatting difficulty ($p<0.001^*$) and hematuria ($p<0.026^*$), respectively. No association was showed between obesity versus urbanization, poor vision and dental caries.

Conclusion: Male students tended to maintain obesity from 1st to 4th grade of elementary school. Obesity children tended to have higher risk of hematuria, more height and weight gain if compared with students in other BMI groups.

NDP-12:

INFLUENCE OF PRUCALOPRIDE ON SECONDARY PERISTALSIS IN REFLUX PATIENTS WITH INEFFECTIVE ESOPHAGEAL MOTILITY

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Objective: Ineffective esophageal motility (IEM) is frequently found in patients with gastroesophageal reflux disease. Secondary peristalsis contributes to esophageal clearance. Prucalopride promotes secondary peristalsis by stimulating 5-hydroxytryptamine 4 receptors in the esophagus. We aimed to determine whether prucalopride would augment secondary peristalsis in patients with IEM.

Materials and Methods: After a baseline recording of primary peristalsis, secondary peristalsis was stimulated by slow and rapid mid-esophageal injections of air in 15 patients. Two separate sessions with 4 mg oral prucalopride or placebo were randomly performed.

Results: Prucalopride significantly increased primary peristaltic wave amplitude (68.1 ± 10.0 vs. 55.5 ± 8.8 mmHg, $p=0.02$). The threshold volume for triggering secondary peristalsis was significantly decreased by prucalopride during slow (9.3 ± 0.8 vs. 12.0 ± 0.8 mL; $p=0.04$) and rapid air injection (4.9 ± 0.3 vs. 7.1 ± 0.1 mL; $p=0.01$). Secondary peristalsis was triggered more frequently after application of prucalopride (55% [43–70%]) than placebo (45% [33–50%]) ($p=0.008$). Prucalopride didn't change pressure wave amplitudes during slow air injection (84.6 ± 8.1 vs. 57.4 ± 13.8 mmHg; $p=0.19$), but increased pressure wave amplitudes during rapid air injection (84.2 ± 8.6 vs. 69.5 ± 12.9 mmHg; $p=0.04$).

Conclusions: Prucalopride enhances mechanosensitivity of secondary peristalsis and promotes motor properties of esophageal peristalsis in IEM patients. Our study suggests that prucalopride is useful in promoting esophageal peristalsis in patients with IEM.

NDP-13:

ZOLPIDEM USE ASSOCIATED WITH INCREASED RISK OF PYOGENIC LIVER ABSCESS A CASE-CONTROL STUDY IN TAIWAN

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Objective: The purpose of this study was to explore the association between zolpidem use and pyogenic liver abscess in Taiwan.

Materials and Methods: This was a population-based case-control study using the database of the Taiwan National Health Insurance Program since 2000 to 2011. We identified 1325 patients aged 20 to 84 years with the first-attack of pyogenic liver abscess as the cases, and 5082 patients without pyogenic liver abscess matched with sex, age, comorbidities, and index year of hospitalization for pyogenic liver abscess as the controls. Patients whose last remaining 1 tablet for zolpidem was noted 7 days before the date of admission for pyogenic liver abscess were defined as current use of zolpidem. Patients whose last remaining 1 tablet for zolpidem was noted >7 days before the date of admission for pyogenic liver abscess were defined as late use of zolpidem. Patients who never received 1 prescription for zolpidem were defined as never use of zolpidem. A multivariable unconditional logistic regression model was used to measure the odds ratio (OR) and 95% confidence interval (CI) to explore the association between zolpidem use and pyogenic liver abscess.

Results: After adjustment for possible confounding variables, the adjusted OR of pyogenic liver abscess was 3.89 for patients with current use of zolpidem (95% CI 2.89, 5.23), when compared with those with never use of zolpidem. The adjusted OR decreased to 0.85 for those with late use of zolpidem (95% CI 0.70, 1.03), but without statistical significance.

Conclusions: Current use of zolpidem is associated with the increased risk of pyogenic liver abscess. Physicians should take the risk of pyogenic liver abscess into account when prescribing zolpidem.

NDP-14:

PERFORMANCE DIFFERENCE BETWEEN SUBCORTICAL ISCHEMIC VASCULAR DISEASE AND ALZHEIMER'S DISEASE ON A NOVEL EXECUTIVE FUNCTION TASK

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Objective: To determine the neurocorrelates and power of the Character Fluency, a novel task of executive function, in discriminating subcortical ischemic vascular disease (SIVD) and Alzheimer's disease (AD) in pre-dementia stage.

Materials and Methods: Subjects with mild cognitive impairment (MCI) due to SIVD (MCI-V), MCI due to

AD (MCI-A), and demographically matched controls were recruited. Neuropsychological tests were given, including the Mini-Mental State Examination, the Character Fluency, the Category Fluency, and the Chinese Version Verbal Learning Test. Participants also received magnetic resonance imaging, and the Schelten scale was used to rate supratentorial white matter hyperintensities (WMHs).

Results: Analysis of variance confirmed dissimilar neuropsychological profiles of the three groups, while post-hoc analysis revealed that Character Fluency was the only measure that differentiated the MCI-V from the MCI-A. Partial correlations controlling for age, education, and MMSE scores showed that the Character Fluency scores were specifically associated with WMHs within frontal periventricular, frontal deep white matter, and basal ganglia regions.

Conclusions: The 1-minute brief Character Fluency task is a useful screening tool for differentiating SIVD from AD in pre-dementia stage. The performance difference may reflect the underlying fronto-subcortical white matter pathologies in SIVD.

NDP-15: COGNITIVE PROFILES AND NEUROIMAGING FINDINGS RELATED TO LOW VITAMIN B₁₂ STATUS

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Objective: Vitamin B₁₂ deficiency has been associated with various neuropsychiatric symptoms, and to be a reversible cause of dementia. As the negative impact of low vitamin B₁₂ status on cognition can range from subclinical neuronal metabolic derangement to an overt debilitating state in line with permanent brain structural changes, prompt recognition of vitamin B₁₂ deficiency is of paramount clinical importance as it is a treatable condition. We herein reviewed articles incorporating structuralized cognitive and neuroimaging evaluations of patients with low vitamin B₁₂ status.

Materials and Methods: Selected articles published from the year 2000 to 2016 were reviewed.

Results: Although the results of research are diverse, several lines of evidence highlight the negative impact on global cognition and possibly domain-specific impairments related to vitamin B₁₂ deficiency. The results of research focusing on changes in magnetic resonance imaging associated with vitamin B₁₂ level vary according to the clinical phenotype. Overall, relevant pathology may range from alterations of cerebral blood flow, changes in microstructure with certain reversibility, to overt reductions in brain parenchymal volume. These findings have been identified globally, either within gray or white matter. The research of functional imaging studies underpinned the possibility of regional vulnerability.

Conclusions: Research incorporating both cognitive and neuroimaging evaluations with regards to vitamin B₁₂ status has found that (i) global changes in volume reduction/microstructural integrity with global cognitive decline and visuomotor

speed, (ii) microstructural integrity in the hippocampus with memory performance, (iii) dysfunction of fronto-subcortical circuits as part of the fundamental pathogenesis of cognitive syndromes, and (iv) possible focal hypoperfusion with corresponding neuropsychiatric syndromes are related to vitamin B₁₂ deficiency.

NDP-16: IMPACT OF CEREBRAL FIBER DYSCONNECTION ONTO BEHAVIORAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA AMONG PATIENTS WITH SUBCORTICAL ISCHEMIC VASCULAR DISEASE AND ALZHEIMER'S DISEASE

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Objective: To compare the pattern of neuropsychiatric symptoms between patients with subcortical ischemic vascular disease (SIVD) and Alzheimer's disease (AD) according to different stages of dementia, and to explore the relationship between patient's neuropsychiatric symptoms and cerebral fiber dysconnection in corpus callosum (CC).

Materials and Methods: Thirty-five patients with SIVD and forty-one patients with AD were recruited. All patients received evaluation of neuropsychiatric symptoms [i.e., Neuropsychiatric inventory (NPI)] and general cognitive function [i.e., Mini-Mental State Examination, Cognitive Abilities Screening Instrument, and Clinical Dementia Rating (CDR)]. NPI data were further integrated into 4 domains, including hyperactivity, psychosis, affective and apathy for statistical analysis. Both SIVD and AD groups were divided into very-mild dementia (CDR=0.5) and mild-to-moderate dementia (CDR=1 or 2) subgroups for comparison of psychiatric domains. Nineteen and thirty-four patients from SIVD and AD group also underwent diffusion tensor imaging (DTI) respectively. The genu, body and splenium of CC were selected to be regions of interest for measurement of fractional anisotropy (FA) and mean diffusivity (MD), with aim to correlate with psychiatric domains.

Results: Overall, SIVD group had more profound total NPI scores ($p<0.05$), apathy domain ($p<0.01$) and the score of agitation in hyperactivity domain ($p<0.05$) than AD in the presence of their equal general cognitive function. Compared with AD group, SIVD group showed a trend of higher scores of agitation in hyperactivity domain in the very-mild dementia stage ($p<0.10$) and significantly higher scores of apathy domain in the mild-to-moderate dementia stage ($p<0.01$). Correlations between NPI and DTI among all patients showed that MD in the splenium ($p<0.01$) of CC correlated with the total score of NPI. MD in the body correlated with the domain of hyperactivity ($p<0.05$). Both FA and MD in splenium correlated with the domain of psychosis and apathy ($p<0.05$). In AD group, the MD in the splenium showed remarkable correlation with the total score ($p<0.05$), and both MD ($p<0.01$) and FA ($p<0.05$) in splenium correlated with psychosis domain. In SIVD group,

the FA in the splenium also showed inverse correlations with the score of psychosis domain ($p < 0.05$).

Conclusions: This study evidences that SIVD patients have neuropsychiatric symptoms distinct from those in AD across different stages. Compared with AD patients, SIVD patients are prone to have more agitation symptoms during the very-mild stage, and apathy symptoms later in the mild-to-moderate stage. DTI within the splenium of corpus callosum has its clinical impact in correlation with the severity of psychosis and apathy symptoms in demented patients. Moreover, the association between psychosis symptoms and splenium of corpus callosum were also shown in both AD and SIVD patients.

NDP-17:

FIVE-YEAR FOLLOW-UP OF SUBTHALAMIC DEEP BRAIN STIMULATION IN TAIWANESE PATIENTS WITH PARKINSON'S DISEASE

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Objective: Subthalamic deep brain stimulation (STN-DBS) has been reported to improve the motor function of patients with advanced Parkinson's disease (PD). This study presents the five-year outcomes of Taiwanese patients with PD treated with STN-DBS.

Materials and Methods: A cohort of 48 PD patients (presurgical age: 61.31 ± 9.81 years) who received STN-DBS in Hualien Tzu-Chi general hospital were followed for 3-6 years (51.6 ± 9.12 months). The Unified Parkinson's Disease Rating Scale (UPDRS) was used to evaluate patient in presurgical off-medication (baseline), postsurgical off-medication/on-stimulation (DBS on) for estimation of STN-DBS effect. Preoperative and postoperative assessments further included Hoehn and Yahr scale (H&Y scale) and evaluation of quality of life (ADL). Paired T test was used for comparing UPDRS, H&Y scale and ADL in presurgical and different follow-up periods. $P < 0.05$ is set as statistically significant.

Results: In 3-6 year follow-up group analysis, STN-DBS significantly improved scores of UPDRS in part II, III, IV, total and axial score in the period of 1-3 and 3-6 year follow-up. The effect of improvement faded if we compared 1-3 year and 3-6 year follow-up. The UPDRS part I and ADL only improved in 1-3 year follow-up but absent in 3-6 year follow-up.

Conclusions: Our data confirm STN-DBS remain an effective treatment for the motor function of Taiwanese PD patient in five-year follow-up. The effect of STN-DBS on improving non-motor parts of UPDRS had gradually declined in the 5-year follow-up.

NDP-18:

THE EFFECT OF ADHERENCE RATE ON PHYSICAL AND BALANCE FUNCTIONS IN COMMUNITY OLDER ADULTS AFTER PARTICIPATING IN COMMUNITY CARE STATION ACTIVITY

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The Community Care Station (CCS), a service for the community-dwelling older adults similar to a day-care center, has been developed and widely promoted by Taiwan's government since 2005. However, little is known about the effect of adherence on physical and balance functions in community older adults after participating in CCS activity. A total of 56 community older adults participating in the CCS activity were conveniently recruited. The CCS was held in the local community settings and regularly provided twice weekly 3-hour physical and recreational activity programs. The adherence is defined as the percentage of attended sessions for the participants relative to the total number of the sessions held by the CCS in one year. The physical mobility, balance, gait performance and flexibility as the outcome measures were evaluated by the same therapist before and after one year. The average adherence was 69.3% for the total participants in one year and the gains in the all outcomes measures except flexibility were significantly related to adherence for these participants. The participants ($n=28$) with over 75% adherence gained significant improvements in the physical mobility, balance, gait performance comparing to the participants with lower 75% adherence. From the present study, the adherence was significantly related to the gains in physical mobility, balance and gait performance in the community older adults after participating in the CCS activity and the 75% participating rate at least was suggested for the community older adults when participating in the CCS activity.

NDP-19:

EFFECTS OF RESISTANCE TRAINING ON BODY COMPOSITION AND MOTOR PERFORMANCE IN PRADER-WILLI SYNDROME PATIENTS

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Objective: Abnormal body composition with decreased lean body mass and increased body fat has been found in adults with Prader-Willi syndrome (PWS), contributing to reduced motor capacity. The aim of this study was to assess that designed resistance exercise training has favorable effects on motor performance and body composition in adults with PWS patients.

Material and Methods: For twenty-four weeks, seven PWS subjects (five males and two females; age range, 18-30 y; body mass index, $22.9-42.5$ kg/m²) received a periodized muscular resistance program, twice a week, with a total of 9 exercises per session for the major muscle groups, supervised by a physical therapist. Functional motor performances were evaluated before, and after 4 and 24 weeks of resistance exercise training, by using clinical functional tests of hand grip,

lateral pinch, timed Up-and-Go test, 30-second chair stand test, 2-min-step up test, and Berg Balance Scale. Body composition change in fat body mass and lean body mass were obtained from dual-energy x-ray absorptiometry before and after the exercise treatment.

Results: Two PWS participants were of normal weight, three of overweight, and two of obese based on BMI. Resistance exercise training resulted in significant improvements 4 weeks after training in hand grip test ($p<0.042$), timed up-and-go test ($p<0.018$), and 30-second chair stand test ($p<0.043$). More significant improvements were noted 24 weeks after training in hand grip test ($p<0.026$), timed Up-and-Go test ($p<0.017$), 30-second chair stand test ($p<0.018$), 2-min-step up test ($p<0.018$), and Berg Balance Scale ($p<0.018$). Significant improvements were noted from dual-energy x-ray absorptiometry in Body weight ($p<0.028$), BMI ($p<0.043$), and extremities fat mass (Lt arm $p<0.046$, Lt leg $p<0.028$, Rt leg $p<0.046$).

Conclusions: Resistance training in adult PWS patients improves body composition by decreasing fat mass and therefore, improving their motor performance.

Table 1: Prader–Willi syndrome patients' clinical function tests between baseline and posttreatment

	Baseline versus 4 weeks		Baseline versus 24 weeks	
	Z	P	Z	P
Grip	-2.032	0.042*	-2.232	0.026*
Lateral pinch	-0.962	0.336	-1.270	0.204
Stand-walk	-2.375	0.018*	-2.388	0.017*
Sit-stand	-2.028	0.043*	-2.371	0.018*
Step in place	-0.813	0.416	-2.371	0.018*
Balance	-1.781	0.075	-2.232	0.026*

* $P<0.05$, by Wilcoxon signed rank test

Table 2: Prader–Willi syndrome patients' body composition between pre- and post-treatment

	Baseline	Posttreatment	P
Body weight (kg)	73.44±18.61	65.55±15.88	0.028*
BMI	29.84±6.180	26.48±4.577	0.043*
Left arm fat (kg)	20.35±6.906	16.79±7.549	0.046*
Left arm fat (%)	54.63±0.073	49.73±0.075	0.046*
Left arm lean (kg)	15.43±3.340	14.88±3.275	0.917
Right arm fat (kg)	20.12±7.355	16.30±6.322	0.173
Right arm fat (%)	51.50±0.073	45.87±0.069	0.075
Right arm lean (kg)	17.58±4.615	17.38±4.842	0.753
Left leg fat (kg)	62.63±24.40	52.34±21.18	0.028*
Left leg fat (%)	46.35±0.040	41.63±0.065	0.028*
Left leg lean (kg)	67.51±17.18	67.08±14.49	0.753
Right leg fat (kg)	60.14±21.77	52.10±18.22	0.046*
Right leg fat (%)	45.65±0.050	42.33±0.067	0.027*
Right leg lean (kg)	66.26±13.88	65.43±11.32	0.753
Trunk fat (kg)	140.8±63.28	129.5±71.27	0.116
Trunk fat (%)	39.83±0.060	36.67±0.088	0.075
Trunk lean (kg)	183.3±61.60	200.4±43.58	0.075
Head fat (kg)	11.49±51.30	8.15±2.632	0.249
Head fat (%)	21.78±0.036	20.38±0.012	0.207
Head lean (kg)	27.20±15.50	27.33±8.787	0.917

* $P<0.05$, by Wilcoxon signed rank test. BMI: Body mass index

NDP-20:

THE RISK FACTORS, COSTS AND SURVIVAL ANALYSIS OF 2007-2012 INVASIVE VRE INFECTIONS AT A MEDICAL CENTER IN EASTERN TAIWAN

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Objective: This retrospective study focused on invasive VRE infection cases from 2007 to 2012 at a medical center in eastern Taiwan and matched them with VSE cases to investigate costs, risk factors, and survival rates with antibiotic treatment after having invasive VRE infections. It is aimed to further understand increased costs and survival rates with antibiotic treatment, which will be served as references for clinical treatment and prevention.

Materials and Methods: Conducted in a 1:3 matched case-control study, the research collected data of all bacterial culture reports from 2007 to 2012 in a medical center in Hualien, from which a study group and a control group were chosen according to set requirements. Variable data needed for the study were collected through medical case reviews and gathering electronic medical information from hospitals. Fisher exact test was first used to determine whether any differences existed between the classification variables of risk factors for VRE and VSE infection cases, and then differences of continuous variables were analyzed using nonparametric method. Also, prognosis of VRE cases was studied via survival analysis.

Results: The study group consisted of 48 cases, and a total of 144 cases were collected as the control group according to the 1:3 matched research method. However, 2 cases were excluded as the patients' data were too old and thus impossible for tracking relevant information, and thus 48 invasive VRE infection cases and 142 invasive VSE infection cases were studied for analysis. The study found that invasive VRE infection has a mortality rate of 64.6%, significantly higher than that of invasive VSE infection (39.4%) with a statistical significance of $P=0.003$. On risk factors of invasive VRE infection, chemotherapy during hospitalization, as well as using third-generation Cephalosporins, Glycopeptides, and Metronidazole before infections, can effectively predict and explain the occurrence of VRE infections. In addition, the daily antibiotics cost for invasive VRE infections is much higher than that for VSE infections (daily cost of \$3,433 V.S. \$1,742 in average), and the difference was statistically significant ($P<0.0001$). Moreover, there was no significant difference in the adoption of related early antibiotic treatment on survival days.

Conclusions: As Taiwan's first research in relevant fields on the antibiotic costs concerning invasive VRE infection cases, this study mainly targeted invasive VRE infection cases and analyzed risk factors, prognosis, and antibiotic treatment costs for this infection. *E.faecium* was the main bacterial in the invasive VRE infections within this study and accounted for 95.8%, which is much larger than that in 42.9% of invasive infections found in Chiayi Chang Gung Memorial Hospital's 5-year

research, yet closer to that in 100% of infections in National Taiwan University Hospital (Wen-Ling Dai, 2010). When demographic variables, APACHE II, and CCI were kept under control, the risk factor of contracting invasive VRE infections is undergoing chemotherapy and using third-generation Cephalosporins, Glycopeptides, and Metronidazole before infections. Generally speaking, invasive VRE cases have a mortality rate of 64.6% and a 28-day mortality rate of 45.8%, which is similar to the research of Chou et al. (2011) on a hospital in southern Taiwan and thus shows a higher mortality rate for patients with invasive VRE infections. For antibiotic treatment, the average daily cost of invasive VRE infections is \$1,691 more than that of VSE cases. On the analysis of surviving cases on patients' release from hospitals, it shows that the average number is 43.8 days of hospitalization for invasive VRE cases (mean number 31 days) and 26.6 days for VSE cases (mean number 16 days), so VRE infection cases increase the days of hospitalization up to 17 days in average. Additionally, it is found in research data that the time of antibiotic treatment for invasive VRE infections had no relevance with prognosis and that early start on antibiotic treatment did not affect the number of patients' surviving days.

NDP-21: OPTIMIZING QUALITY OF DIGITAL MAMMOGRAPHIC IMAGING USING TAGUCHI ANALYSIS WITH AN ACR ACCREDITATION PHANTOM

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Objective: This work demonstrated the improvement of the visualization of lesions by modulating the factors of an X-ray mammography imaging system using Taguchi analysis.

Materials and Methods: Optimal combinations of X-ray operating factors in each group of level combination were determined using the Taguchi method, in which all factors were organized into only 18 groups, yielding analytical results with the same confidence as if each factor had been examined independently.

Results: The 4 considered operating factors of the X-ray machine were (1) anode material (target), (2) kVp, (3) mAs and (4) field of view (FOV). Each of these factors had 2 or 3 levels. Therefore, 54 ($2 \times 3 \times 3 \times 3 = 54$) combinations were generated. The optimal settings were Rh as the target, 28 kVp, 80 mAs and 19.23 cm² FOV. The grade of exposed mammographic phantom image increased from the automatic exposure control (AEC) setting 70.92 to 72.00 under the optimal setting, meeting the minimum standard (70.00) set by Taiwan's Department of Health. The average glandular dose (AGD) of the exposed phantom, 0.182 cGy, was lower than that, 0.203 cGy, under the AEC setting.

Conclusions: The Taguchi method was extremely promising for the design of imaging protocols in clinical diagnosis.

NDP-22: URINARY BIOMARKERS IN PATIENTS WITH DETRUSOR UNDERACTIVITY WITH AND WITHOUT BLADDER FUNCTION RECOVERY

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Objective: Detrusor underactivity (DU) is frequently encountered in elderly patients with chronic medical disease or neurological diseases. The pathophysiology of DU may involve neurogenic, myogenic and bladder outlet pathologies. Part of patients with DU might have bladder function recovery after treatment. This study investigated the urinary proteins in these patients in comparison with patients with detrusor overactivity (DO), detrusor hyperactivity and inadequate contractility (DHIC), and patients with normal urodynamic tracing.

Materials and Methods: A total of 37 patients with chronic urinary retention and urodynamically proven DU were enrolled. After medical or surgical treatment, 24 DU patients had bladder function recovery whereas 13 had not, after one-year follow-up. Urine collection at baseline was performed and the urinary protein including nerve growth factor (NGF), brain-derived neurotrophic factor (BDNF) and prostaglandin E2 (PGE2) were measured by ELISA. 20 urodynamically normal, 34 DO and 15 DHIC patients served as comparative groups.

Results: Patients with DU had significantly higher urinary NGF (9.2 ± 20.3 v 1.85 ± 2.9 , $p=0.037$), BDNF (153.4 ± 199.1 v 77.4 ± 47.7 pg/mL, $p=0.033$) and PGE2 (525.3 ± 269.3 pg/mL v 971.4 ± 811.4 , $p=0.004$) levels than those in normal group, but not higher than those in DO and DHIC groups. In DU patients with bladder function recovery, the urinary levels of BDNF and PGE2 were significantly higher than the normal group (190 ± 239 v 77.4 ± 47.7 , $p=0.033$; 1290 ± 836 v 525.3 ± 269.3 , $p<0.0001$, respectively). The urinary NGF and BDNF levels in the recovery DU group were similar to, but PGE2 was significantly higher than non-recovery group (1290 ± 836.3 v 382.8 ± 237.0 , $p=0.001$) or DO group (1290 ± 836.3 v 740.8 ± 597.1 , $p=0.020$).

Conclusions: Patients with DU and higher urinary PGE2 and BDNF levels might have a chance to recover bladder function than those with a lower protein level. Urinary protein levels provide prognostic value of bladder function and dysfunction.

NDP23: THIAZIDE DIURETICS AND THE RISK OF HIP FRACTURE AFTER STROKE: A POPULATION-BASED PROPENSITY-MATCHED COHORT STUDY

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Objective: Stroke and a consequent decline in bone mineral density increase hip fracture risk. Previous studies have indicated that thiazides can modulate calcium homeostasis, effectively preserving bone mineral density at the hip. There

are no reports on the relationship between thiazide use and hip fracture risk after stroke. Thus, we investigated whether use of thiazides can reduce hip fracture risk after stroke.

Materials and Methods: We conducted a population-based retrospective cohort study based on the Taiwan National Health Insurance Research Database. Patients with newly diagnosed ischemic stroke between 2000 and 2012 were included. After propensity score matching, 7960 patients were included, of whom 3980 received thiazides and 3980 did not. Cox proportional hazards regression model was used to calculate the hazard ratios (HRs) for hip fractures within 2 years after stroke depending on thiazide use.

Results: Overall, patients using thiazides after stroke had a lower risk of hip fracture than those not using thiazides (8.5 vs. 13.9 per 1000 person-years, adjusted HR=0.64, 95% CI=0.46–0.89, p=0.007). Further sensitivity analysis based on the duration of thiazide use revealed that the risk of hip fracture tended to decrease as the duration of exposure of thiazides increased. However, the effect was significant only in patients with long-term use of thiazides (using thiazides for >365 days within 2 years after stroke), with a 59% reduction in the risk of hip fracture when compared with patients not using thiazide (adjusted HR=0.41, 95% CI=0.22–0.79, p=0.008).

Conclusion: The long-term use of thiazides is associated with a decreased risk of hip fracture after stroke.

NDP-24:

LONG-TERM SUCCESS RATE OF SUBURETHRAL SLING PROCEDURE IN STRESS URINARY INCONTINENCE PATIENTS WITH DIFFERENT BLADDER FUNCTION

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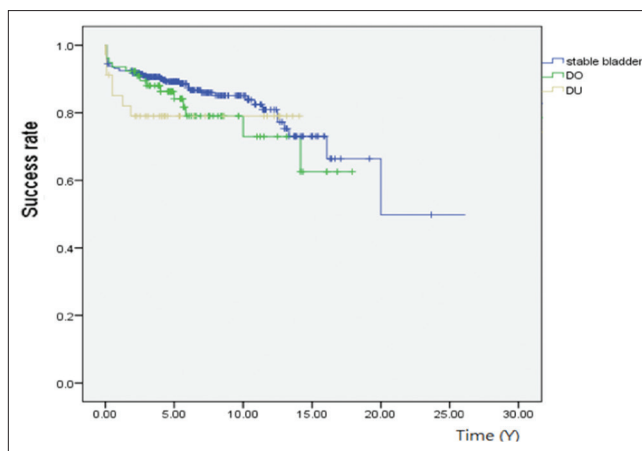
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Objective: To investigate the long-term success rate of suburethral sling in stress urinary incontinence (SUI) patients with different bladder function such as stable bladder, detrusor overactivity (DO) and detrusor underactivity (DU).

Materials and Methods: 403 female SUI patients who undergone suburethral sling procedure was enrolled in the study. Pre-operative video urodynamics study (VUDS) were performed and they were classified into 3 groups: (i) stable bladder, (ii) DO and (iii) DU. The baseline and post-operative urodynamic parameters; and therapeutic outcome were compared among three groups. The longest follow up in this study was up to 240 months.

Results: A total of 403 participants, 291 (72.2%) had stable bladder, 78(19.4%) had DO and 34 (8.4%) had DU. The overall continence rate was 355 (81.8%), dysuria 79 (18.2%), urge incontinence 15 (3.5%), SUI and required secondary sling was 70 (16.1%) and urethrolysis was 14 (3.2%). The continence rate in stable bladder group was 84.5%, 80.8% in DO group and 79.4% in DU group, p=0.59. The therapeutic outcome of different bladder functions was shown in Table 1 and Figure 1. Using Kaplan-Meier survival analysis, patients with stable bladder had the most sustainable cure rate for SUI, followed by patients with DO and lastly DU, p=0.39.

Conclusion: The overall continence rate was 83.4% and the 10-year continence rate achieved at least 72.9%. Pre-operative urodynamic study for bladder function could not determine the therapeutic outcome in patients with SUI.



	Continence rate (year)			
	5 (%)	10 (%)	15 (%)	20 (%)
Stable	88.6	83.8	73	49.8
Detrusor overactivity	84.1	72.9	62.5	
Detrusor underactivity	79.0			

Figure 1: Kaplan–Meier survival analysis of cumulative continence rate of suburethral sling in three groups of patients according to preoperative urodynamic study

Table 1: Therapeutic outcome in patients with different groups

Detrusor function	Therapeutic outcome					
	Continent, n (%)	De novo UUI, n (%)	De novo urgency, n (%)	De novo Dysuria, n (%)	Urethrolysis, n (%)	Secondary sling, n (%)
Stable (n=291)	246 (84.5)	11 (3.8)	13 (4.5)	51 (17.5)	11 (3.8)	54 (18.6)
DO (n=78)	63 (80.8)	3 (3.8)	4 (5.1)	15 (19.2)	0	14 (17.9)
DU (n=34)	27 (79.4)	0	1 (2.9)	5 (14.7)	2 (5.9)	16 (47.1)
Total (n=403)	336 (83.4)	14 (3.5)	18 (4.5)	71 (17.6)	13 (3.2)	84 (20.8)

DO: Detrusor overactivity, DU: Detrusor underactivity, UUI: Urge urinary incontinence

NDP-25:

EFFICACY AND FEASIBILITY OF SS-3 ADRENOCEPTOR AGONIST IN PATIENTS WITH DETRUSOR HYPERACTIVITY AND IMPAIRED CONTRACTILITY

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Objective: Detrusor hyperactivity with impaired contractility (DHIC) is an increasingly recognized cause of urinary incontinence in elderly but frequently misdiagnosed. Although the underlying pathophysiology of DHIC remains unclear, current treatments primarily target at symptomatic control. Antimuscarinics was proven effectively in alleviating storage symptoms, yet high incidence of adverse events (AEs) often limit its use. Mirabegron, a selective β3-adrenoceptor agonist, which has a different mechanism of action from antimuscarinic agents with similar therapeutic outcome. In this study, we aimed to examine the efficacy and feasibility of mirabegron in patients with DHIC.

Materials and Methods: A total of 213 patients with videourodynamic (VUDS) evidence of detrusor overactivity and DHIC were prospectively enrolled. All patients were then given a daily dose of 25mg mirabegron orally. Their subjective symptom outcome, uroflowmetry data and reported AEs were recorded at baseline, 1 and 3 months and compared. Exclusion criteria including those with neurogenic bladder, bladder outlet obstruction and acontractile bladder. Patients who formerly exposed to antimuscarinic agents were also precluded from this study.

Results: 19 patients had findings consistent with DO and 9 patients had DHIC 28 patients were eligible for inclusion in this study. The mean age for each group was 70.1±15.9 and 73.3±8.6 years old, respectively. At 3-month follow-up, use of mirabegron in both DO and DHIC groups demonstrated significantly improvement in IPSS-S, OABSS, USS, PPBC and GRA compared to baseline ($P<0.05$). PVR was not statistically different between two groups. Improvement of symptoms score at 3 month was not inferior in DHIC group in comparison to DO group [Table 1]. The most common AEs were dry mouth and dizziness. Incidence of AEs was not significantly different in DHIC group after taking 3-month daily dose of mirabegron [Table 2].

Conclusions: Use of mirabegron is considered as effective and feasible option in treatment-naive patients with urodynamic DO, even in those with DHIC. AEs were generally sporadic and self-limited.

Table 1: The parameters of patients with detrusor overactivity and detrusor hyperactivity with impaired contractility at baseline, 1 month and 3 months after mirabegron

Parameters	Subjects	Baseline	1 month	3 months
OABSS	DO	8.63±4.23	6.52±3.48*	5.47±3.17*
	DHIC	7.22±4.35	6.78±3.42*	4.78±3.70*
USS	DO	2.42±1.12	1.63±1.50*	1.00±1.41*
	DHIC	1.78±1.39	1.89±1.45	1.33±1.58*
PPBC	DO	4.37±1.92	3.26±1.94*	3.58±2.01
	DHIC	4.44±1.42	3.11±1.90	2.22±1.56*
IPSS-S	DO	8.47±3.67	6.74±3.31*	6.16±3.24*
	DHIC	6.78±3.49	6.56±2.79#	6.68±4.71
IPSS-V	DO	5.00±5.13	6.00±5.90	6.16±6.61
	DHIC	10.8±8.06	9.67±9.07#	7.89±6.43
IPSS-T	DO	13.5±5.97	12.7±5.97	12.3±7.96
	DHIC	16.4±10.53	16.2±8.29	14.7±8.41
Nocturia	DO	4.21±1.03	4.05±1.08	3.895±0.81
	DHIC	4.22±0.83	4.11±0.93	3.78±1.30
GRA	DO	-2.32±1.00	0.53±1.31*	0.42±0.96*
	DHIC	-2.33±1.00	0.33±1.58*	0.78±1.99*
Qmax (mL/s)	DO	8.58±4.71	10.7±6.43	10.7±5.09
	DHIC	7.11±2.26	11.3±12.1	7.44±2.65
VV (mL)	OAB	96.6±72.7	115.1±85.2	121.7±91.0
	DHIC	108.1±39.5	143.1±150.1	96.1±55.6
PVR (mL)	DO	56.4±97.8	103.4±72.5	48.8±163.8
	DHIC	203.4±148.0	164.0±99.2#	181.7±142.1
VE (%)	DO	0.73±0.30	0.68±0.26	0.68±0.30
	DHIC	0.41±0.16	0.41±0.24	0.40±0.18

*#Statistically significant ($P<0.05$). OABSS: Overactive bladder symptom score, USS: Urgency severity score, PPBC: Patient perception bladder condition, IPSS-S, V, T: International prostate symptom score storage, voiding, total, Q_{max}: Maximal urinary flow rate, VV: Voided volume, PVR: Postvoid residual, VE: Voiding efficiency, DO: Detrusor overactivity, DHIC: Detrusor hyperactivity with impaired contractility

Table 2: The incidence of adverse events reported by patients with overactive bladder and detrusor hyperactivity with impaired contractility at 1 month and 3 months after mirabegron

	Subjects	1 month (%)	3 months (%)
Dry mouth	DO (n=19)	1 (5.2)	2 (10.5)
	DHIC (n=9)		
Dizziness	DO	1 (5.2)	2 (10.5)
	DHIC	1 (11.1)	1 (11.1)
Peripheral edema	DO	1 (5.2)	
	DHIC		
Dysuria	DO		1 (5.2)
	DHIC		1 (11.1)
Constipation	DO		1 (5.2)
	DHIC		
PVR >200 mL	DO	1 (5.2)	3 (15.8)
	DHIC	4 (44.4)	4 (44.4)

PVR: Postvoid residual, DO: Detrusor overactivity, DHIC: Detrusor hyperactivity with impaired contractility

NDP-26:

ACTIVE NUTRITION EDUCATION IS THE EFFECTIVENESS WAY FOR DIABETES MANAGEMENT ON GLYCEMIC CONTROL

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Objective: Diabetes treatment with medication add on nutrition education is known as the best way to improve diabetes control then only treatment with medication control. Whether which kind of nutrition education can prove better diabetes control is unknown. To investigate whether periodic nutrition education intervention or active nutrition education intervention which is the best way to improve diabetes control.

Materials and Methods: 346 diabetes participants with diabetes were enrolled by medical doctor in endocrinology and metabolism outpatient department of Taipei Tzu Chi Hospital since January 2015 to December 2015. All of the enrolled participants were ask to have regular medical treatment every 3months, otherwise, medical doctor well also ask participants to having nutrition education for complete treatment. Base on participants welling, we separate participants to 3 groups, non-education intervention group, periodic nutrition education intervention group, active nutrition education intervention group. All groups received anthropometric measurements and receive clinical laboratory measurements including blood pressure, HbA1c, LDL, AC, PC, TG after an eight-to twelve-hour fasting.

Results: 346 diabetes participants were enrolled. There were no significant group differences in age, gender, height, weight, resting SBP (systolic blood pressure), resting DBP (diastolic blood pressure), LDL, AC, PC, TG. We found significant different in HbA1c ($p=0.03$) between the non-education intervention group (7.74±1.45), periodic nutrition education intervention-group (7.33±1.52) and active nutrition education intervention

group (7.12±1.13). Using multivariate logistic regression analysis HbA1C in periodic or active education intervention compare with non-education intervention groups shows active education intervention group have better OR (odds ratio) in Model 1, non-adjusted, 0.76 (0.62, 0.94), P=0.012; Model 2, adjusted for age and sex, 0.76 (0.62, 0.94), P=0.012; Model 3: adjusted for factors in model 2 plus LDL AC PC TG, 0.71 (0.53, 0.96), P=0.027. HbA1C increase 1 unit, the probability of patients who belong to periodic education intervention group is 1.087 times that belong to active education intervention.

Conclusions: The active nutrition education intervention is an effective way to improve diabetes control.

NDP-27:

SHORT TERM OUTCOMES OF LAPARO-ENDOSCOPIC SINGLE-SITE CERVICAL LIGAMENT-SPARING HYSTERECTOMY IN QUALITY OF LIFE AND SEXUAL LIFE: A PROSPECTIVE COMPARATIVE STUDY

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Objective: To present the comparative short-term outcomes of the laparo-endoscopic single-site cervical ligament-sparing hysterectomy (LESS-CLSH) in quality of life and sexual life.

Materials and Methods: This is a prospective case-controlled study included women who underwent LESS-CLSH were compared to LAVH and laparoscopic subtotal hysterectomy (LSH) from August, 2015 to May, 2017. Questionnaires for the quality of life (QoL) [WHOQOL-BREF (28)], urinary distress (UD-6 & IIQ-7) and sexual life (PISQ-9) were collected preoperation, 3 and 6 month after surgery.

Results: This prospective study totally included 120 women (30 LESS-CLSH, 45 LSH and 45 LAVH). Compare to the condition before surgery, the QoL in three groups were significantly improved in the domain of physical and psychological. However, in overall QoL, only LESS-CLSH and LSH groups were significantly improved. The total score of sexual life in LESS-CLSH and LSH groups were increased after surgery but decreased in LAVH group. Interestingly, LESS-CLSH group had significant improvement and scored the highest mark between groups in questions of sexual climax and excitation after surgery. LESS-CLSH group also had fewer problem in sex partner's premature ejaculation. LSH group also had fewer problem of negative reactions and in sex partner's erectile. In urinary distress questionnaires, only LESS-CLSH and LSH groups were significantly improved at 3 months after surgery.

Conclusions: The short term initial outcomes of this approach of hysterectomy in QoL, sexual life and urinary distress are positive, large scale randomised comparative study is warranted.

NDP-28:

ACTIVELY MONITORING PHYSIOLOGICAL SIGNS IMPROVES DURING-RADIOTHERAPY PATIENT SAFETY

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Objective: Cancer patients are vulnerable when they received anti-cancer therapies. Thus, during the whole course of radiotherapy (RT), regularly checking physiological signs – including vital signs and body weight – could be helpful to initiate an early diagnosis and to act a prompt intervention for RT-associated complications, such as unexpected sepsis or malnutrition. For protecting during-RT patient safety, we conducted a quality control cycle (QCC) to check patients' vital signs daily and to measure their body weight weekly. End points of patient safety were improved after our efforts.

Materials and Methods: Firstly, we retrospectively analyzed our pre-improving data and found: the daily vital-sign check rate of 9% (977 / 10,449 daily person times) and the weekly body-weight check rate of 11% (227 / 2,090 weekly person times). The two rates were too low to be satisfied for protecting patient safety. Thus, we conducted a QCC to apply cycles of plan-do-check-action (PDCA) to improve the two check rates. Several countermeasures were implemented. For example, we enhanced alertness of colleagues and patients to potentially lethal illnesses, and we used Modified Early Warning Score (MEWS) to carry out early clinical alerts for high-risk patients. Active nutrition interventions were also applied for patients who had significant during-RT body weight loss (>5%). Most importantly, our improving methods were incorporated into our patented Integrated Radiation Oncology Information Platform (IROIP) for systemically monitoring. Institute Review Board (IRB) approved the present study, and all of the presented data were audited by intramural and extramural expert peers.

Results: The daily vital-sign check rate was increased from 9% to 82% (614/749 daily person times, P<0.0001). More notably, in the first two months, three patients were identified as having early abnormal vital signs that were resulted from severe illnesses, in terms of influenza-combined diffuse pneumonia, acute renal failure, and massive pleural effusion. All of the three patients were managed promptly, and potential lethal events were avoided successfully. The weekly body-weight check rate was elevated from 11% to 92% (180/196 weekly person times, P<0.0001). All patients who had significant body weight loss were managed early by our team workers, including an oncology-specific registered dietitian, resulting in a decrease of incidence of severe body weight loss (from 36.8% to 6.2%; P=0.037).

Conclusions: For cancer patients who were treated with RT, actively monitoring patients' physiological signs is able to decrease incidences of unnecessary malnutrition and adversely potentially lethal events.

NDP-29:

23-VALENT PNEUMOCOCCAL POLYSACCHARIDE VACCINE REDUCE THE RISK OF HOSPITALIZED PNEUMONIA OCCURRENCE IN ELDERLY LONG-TERM CANCER SURVIVORS

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Objective: The present study was conducted for investigating the role of high-valent pneumococcal vaccine (PPSV23) on hospitalized pneumonia occurrence in elderly long-term all cancer survivors.

Materials and Methods: By investigating a million-people dataset of Taiwan National Health Insurance Research Database (TNHIRD), we identify 6,784 cancer patients older than 75 years old and qualified for free PPSV23. Of these, we included 1,887 cancer survivors who were diagnosed before 2002 and survived for more than five years. Among them, total 507 patients ever receiving PPSV23 and most persons (387 patients, 76.3%) received PPSV23 from October 2008 to December 2008 when we defined as “vaccination period”. After a 3-factor propensity-score match (i.e., age, gender, and previous pneumonia), we finally included 377 and 754 elderly long-term cancer survivors with and without vaccine. We defined incidence density (ID) of pneumonia hospitalization per person-year (PYs) as the primary endpoint. The ID follows the Poisson distribution. We performed the multivariate log-linear Poisson regression model to calculate the incidence rate ratios (IRRs) and the corresponding 95% confidence intervals (CIs), with adjustment for potential confounders. Several potential confounders were considered to be adjusted, such as age, gender, influenza inoculated seasons, anti-cancer treatments, patients’ comorbidities, and sociodemographic factors.

Results: Patients in the PPSV23-received group had a lower ID of hospitalized pneumonia (73.66 per 1000 PYs) when compared with those in the non-received group (117.82 per 1000 PYs). After adjustment, we observed that PPSV23 vaccination statistically significantly reduced a risk of hospitalized pneumonia occurrence, with an incidence rate ratio (IRR) of 0.695 (P=0.030). Two-year cumulative hospitalization rates were 10.3% and 15.3% for elderly cancer survivors with and without inoculated PPSV23 (p=0.028), respectively.

Conclusions: For elderly long-term cancer survivors (≥75 years), inoculated PPSV23 may be able to reduce a risk of hospitalized pneumonia. Further prospective studies should be conducted to demarcate its real effective size.

NDP-30:

CLINICAL BENEFITS OF INCREASED EXECUTIVE RATE OF SHARED DECISION MAKING IN RESPIRATORY-MODULATED RADIOTHERAPY

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Objective: Radiotherapy (RT) is one of essential modalities in managing breast and lung cancers. In modern oncological era,

several advanced RT techniques have been applied clinically, such as Volume-modulated Arc Therapy (VMAT) and respiratory-modulated combined radiotherapy (e.g., Deep-inspiration Breath-hold [DIBH]). For most patients, adjudging pros and cons of these advanced techniques is not easy. A lot of questions frequently generated during the process of informing concern, leading to different degrees of delaying treatment and unnecessary loading of clinical staffs. Hence, we implemented quality control circle (QCC) to conduct patient-physician shared decision making (SDM) for improving quality of care in lung and breast cancer patients.

Materials and Methods: Clinical problem before implementing QCC: In breast and lung cancer patients who were planned to receive RT, we previously used one-way explanation (i.e., physician to patient). As a result, it is not uncommon to encounter patients who had several post-explanation questions. Analysis of etiology: Applying SDM that adopted two-way patient-physician interaction was the main way to resolve this problem. Two main groups of countermeasures: Group 1: enhancing recognition and standardizing processes of SDM. To increase effectiveness of patient-physician communication and interaction, we conducted several training activities for our staffs, in terms of pros and cons of RT technologies, such as VMAT and DIBH-based RT. We also established standard operation process (SOP) to demarcate patient preferences and requirements. Explaining contents were depicted visually to help patient to make their final decisions. Countermeasure, Group 2: to optimize effectiveness of informing concern by using multimedia materials. In addition to visual presentation, we also used multimedia to further increase patient recognition and enhance effectiveness of patient-physician interaction, such as e-communication and web-based video-educating materials.

Result: Before and after implementing QCC to conduct SDM, several improvements were noted after internal and external audits. First, SDM executive rate in lung and breast cancer patients was both elevated from 0% to 100%. Second, patient recognition level for radiotherapy technology was increased from 50.0% to 83.3%. Third, intra-mural treatment compliance rates were elevated: lung cancer, from 85.1% to 96%, P<0.05; and, breast cancer, from 85.0% to 96.6%, P<0.05. More notably, patient-physician interaction and quality of care were improved obviously after SDM implementation. For example, the incidence rate of severe anemia occurrence (Hgb<10 g/dL) was decreased from 13.3% (10/75) to 7.1% (3/42). Remarkably, during the study period, no unnecessary treatment delay was identified.

Conclusion: In modern oncological era, conducting SDM is useful to increase patient recognition, to improve patient-physician interaction, and then to enhance quality of care. Unnecessary treatment delay is able to be avoided in breast and lung cancer patients.

NDP-31:

PARENTAL NUTRITION IN PRETERM INFANTS: A RETROSPECTIVE STUDY

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Objective: This study is to assess whether by giving parenteral nutrition (PN) to preterm infant as soon as possible after birth would enhance the growth of premature infants.

Materials and Methods: Retrospective study, which includes preterm neonates who, from 2014 to 2016, were born and admitted to Neonatal Intensive Care Units (NICU), weighing under 2000 g and having received PN for more than 7 days. The information collected include gestation periods, genders, birth weights, Apgar score (appearance, pulse, grimace, activity, respiration) and calculations of the average calories, glucose, protein and lipid given to each preterm neonates in the first seven days of their birth. The facts examined include the day of weight gain (times to regain over birth weight), total days of PN, weight gain per day in grams, weights at discharge and days of hospitalization.

Results: A retrospective cohort of 36 neonates. After the multiple regression analysis and correction of basic data, this study finds that the days of hospitalization and the day of weight gain (times to regain over birth weight) were associated with receiving PN as soon as possible after birth. However, the difference of total days of PN, weights at discharge and weight gain per day in grams, did not reach statistical significance.

Conclusions: The results of this study show that early PN may provide the benefits to pretermneonates.

NDP-32: EFFICACY AND CARDIOVASCULAR OUTCOMES OF CONTINUOUS ERYTHROPOIETIN RECEPTOR ACTIVATOR USED IN HEMODIALYSIS PATIENTS

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Objective: In this study, we evaluated the cardio-protection effects of CERA to compare with traditional ESA. Erythropoiesis-Stimulating Agents (ESA) can help hemodialysis patients to improve their hemoglobin index effectively. Moreover, clinical evidence showed that ESA could also help to adjust hemodialysis patients' dyslipidemia, to improve left ventricular mass index (LVMI) and to enhance left ventricular ejection fraction (LVEF) for cardioproteion. However, the half-life of traditional ESA is very short. The U.S. FDA approved a continuous erythropoietin receptor activator (CERA), Mircera®, which processes longer half-life and injected once a month. However, the cardio-protection effects are still unknown.

Materials and Methods: This is a prospective drug safety and efficacy evaluation study. Patients who used the traditional ESA with stable physical condition were recruited into the study and shift to use Mircera®. Based on the National Kidney Foundation Dialysis Outcomes Quality initiatives (NKF-DOQI) hemoglobin target, we designed the first four months as medicine adjustment period and the following two months as assessment period. Assessment criteria as following, ferritin, Transferrin saturation(TSAT), LVMI, LVEF, pro-BNP, total lipid, HDL, Apo-lipoproteins, Triglyceride and hemodialysis rate, Kt/v. Student t-test and Wilcoxon test to compared

the different were performed and SPSS® v. 18 and Microsoft Excel® were used for data analysis. Clinical research was permitted by the Institutional Review Board of Taichung Tzu Chi Hospital (REC100-42).

Results: The total of 15 patients were recruited into and completed this study. There were 10 males and 5 females with the average age 65.13±10.88 years old. Compared with the hemodialysis rate pre- and post- shifting, Kt/v was 1.33±0.15 and 1.33±0.14, p=0.35. There was no significant different in TSAT. Compared with cardio-protection effects pre-and post-shifting drug, LVEF was 66.13±6.69% vs. 64.15±7.70%, p=0.08, LVMI was 119.28±31.22 vs. 128.00±36.2, p=0.22. Total lipid distribution was no significant different either. The limitation of this study was fewer cases recruitment.

Conclusions: With the promising treatment goal, long-acting erythropoiesis stimulating agents were found the similar cardio-protection outcomes and lipid distribution as the tradition ESA.

NDP-33: THE LIVED EXPERIENCES OF ABORIGINAL ADOLESCENT SURVIVORS OF CHILDHOOD CANCER DURING THE RECOVERING PROCESS IN TAIWAN: A DESCRIPTIVE QUALITATIVE RESEARCH

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Objective: The purpose of this study was to understand the experiences of Taiwanese aboriginal adolescent survivors of childhood cancer during the process of recovery.

Materials and Methods: A snowball sampling strategy was used to recruit participants from the pediatrics unit of a medical center in the eastern region of Taiwan. In-depth interviews were conducted with 11 aboriginal adolescent childhood cancer survivors. The data were analyzed using content analysis [Table 1].

Results: The results revealed three major themes with sub-themes within each theme. The three major themes are: roots of resilience, transformation and growth, and meaning of traditional rituals for resilience. The three subthemes within "roots of resilience" include: "feeling secure through company of family, care and financial support", "receiving support from the important others and religion" and "learning to self-adjust". The three subthemes revealed within "transformation and growth" are: restructuring the relationship with peers, "appreciating parents' hard work", and "learning to seize the moment". The two subthemes within "meaning of traditional rituals to resilience" include: "feeling blessed with the power of ancestral spirits" and "strengthening ethnic identity" [Table 2].

Conclusions: This study provided insight into the experiences of aboriginal adolescents as they recovered from childhood cancer. The experiences made positive impacts by inspiring growth in maturity and consolidating aboriginal ethnic identity. The adolescents were empowered by support from family, friends and clansmen, and by their participation in aboriginal rituals. As healthcare professionals care for the aboriginal adolescents, it is

Table 1: Demographic data

ID	Age	Gender	Diagnosis	Tribe	Religion	Length of treatment	Length of time since completion of treatment	Primary caregiver	Parental marital status
A	12	Male	ALL	Amis	Catholic	3 years	1 years	Mother	Married
B	17	Male	ALL	Taroko	Christian	3 years	5 years	Mother	Separated
C	16	Male	Lymphoma	Amis	Taoist	3 months	2 years 6 months	Mother	Married
D	16	Male	ALL	Bunon	Taoist	3 years	7 years	Mother	Married
E	13	Male	Hepatoblastoma	Taroko	Christian	3 months	11 years	Mother	Death (mother the father)
F	12	Female	Lymphoma	Amis	Taoist	6 months	5 years 6 months	Mother	Married
G	15	Male	Brain tumor	Amis	Christian	6 months	1 years 6 months	Mother	Divorced
H	16	Female	Lymphoma	Amis	-	3 months	7 years 9 months	Mother	Married
I	14	Female	Lymphoma	Amis	Christian	6 months	4 years	Mother	Married
J	17	Male	Lymphoma	Amis	Catholic	6 months	1 years	Mother	Divorced
K	17	Female	AML	Amis	Christian	6 months	1 years 6 months	Mother the father	Married

AML: Acute myeloid leukemia, ALL: Acute lymphoblastic leukemia

Table 2: Themes and subthemes

Theme	Subtheme
Roots of resilience	Feeling secure through company of family. Care and financial support Receiving support from significant others and religion Learning self-adjustment
Transformation and growth	Restructuring the relationship with peers Appreciating parent's hard work Learning to seize the moment
Impact of traditional rituals on resilience	Feeling blessed by the power of ancestral spirits and clansmen Strengthening ethnic identity

critical to consider this culturally and ethnically specific knowledge/experience of surviving cancer to improve quality of care.

**NDP-34:
CORRELATION JOB STRESS AND PRACTICE ENVIRONMENT WITH OCCUPATIONAL BURNOUT: A CLINICAL STUDY OF EMERGENCY ROOM NURSES IN TAIWAN HOSPITALS**

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Objective: This study aims to examine the relationship of hospital emergency room nurses between job stress, practice environment, and modulating effects of these factors on the occupational burnout.

Materials and Methods: A cross-sectional study with Chinese version of Nurse Stress Checklist, Nursing Work Index Revised and Maslach Occupational Burnout Inventory developed at six hospitals ER nurses.

Results: The emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA), three subscales of occupational burnout, were correlated significantly with age and years of work experience. The EE and DP were shown significant difference between have religious belief and none. The EE and DP were significantly related to the ability of personal response, incompleteness of personal arrangement and work concern of job stress, and to four subscales of nursing practice environment including work autonomy, control over the practice setting, nurse-physician relationship, and organization support. The PA was significantly correlated to the ability of personal response

and job competency, and also related to autonomy, nurse-physician relationship, and organization support.

Conclusions: The personal response and work concern in job stress may play as an enhancing role to modulate work occupational burnout, while the religious belief, good nurse-physician relationship, and positive organization support may play as a palliative role to modulate work occupational burnout among ER nurses.

**NDP-35:
ENHANCING THE ATTENDANCE RATE OF THE DAY WARD IN THE PSYCHIATRIC DEPARTMENT**

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Objective: Regular day ward rehabilitation for patients with chronic mental illness will help their early return to society. If not attending regularly, patient is likely to lose structured life at home, leading to deterioration of mental symptoms. When becoming serious, they will then be sent to the acute ward for hospitalization again. The rate our hospital day ward attendance was reduced from 93.4% in 2014 to 88.8% in 2014, which was lower than the target of 90%. To improve the effectiveness of rehabilitation, the unit started to undergo improvement. From May 18, 2015 to May 30, 2015, the "Actual Attendance Table" was used to understand the actual attendance status of each case. The reasons for the absent patients were found to be, lack of treatment activities, motivation for attendance being the highest, at 51%, and not having clearly specified leave of absence for outside activities being next, at 39%.

Materials and Methods: The unit will undertake discussion through the task force. The psychologists will select the assessment tools and conduct assessment based on relevant literatures. Each case will be evaluated and graded according to the assessment results to provide case-based rehabilitation therapy. In addition to regular and random telephone calls to family members by day ward nurses to understand the views of families on the patient's rehabilitation, while at the same time adding the family communication booklet as a communicating medium. Through the family communication booklet, family members can communicate with patient's ward to bridge the gap between the family and the ward.

Results: After improvement, the attendance rate of day wards increased from 88.8% to 90% in the first five months of 2015. Cases were graded according to ability, and the number of participants in the workshops increased from 10 to 15 in the initial stage of the project. The number for light-food workshop increased from 2 to 5; the number for gardening team increased to 5. Currently, the number at the workshops is 20. Five of them participated in two workshops.

Conclusions: According to the individual capacity of the case and develop individual rehabilitation plan, is to enhance the patient's motivation to the hospital and will help their early return to society.

NDP-36: USING TRM TO REDUCE UNEXPECTED EXPECTED RATE OF INTENSIVE CARE UNIT

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Objective: The rate of unanticipated re-admitted in the intensive care unit is 0.75% during 2014 to 2015. Twice as high as that is in others hospitals. The most frequent cause of re-entry is respiratory failure, which leads to a 21% mortality rate. In addition, the results of the patient safety survey conducted by hospital in 2014 also showed that the satisfaction degree of the team in the nursing handover and cross-team cooperation was low. The lack of correct and effective shift cooperation consensus among the units, thus improving the correctness of inter-team transfer is our intent.

Materials and Methods: In January 2016, the intensive care unit physician, nursing and respiratory therapists formed a task force, using of TRM's SBAR approach team review, revision of intensive care unit transferred to work practices. To formulate inter-unit telephone shift content, and educate family to practice patient Instructions. Improve communication between the team and the family. To inspire the team morale with "I'm safe" ploy, and create a cautious working atmosphere. Using of "Hand off" model improve cross-unit shift integrity. Training colleagues no hesitate to contact medical team with "Check Back" manual to accurately transfer the content of the shift. The above measures as a standard process, providing nursing colleagues another way of education.

Results: The 6-month intervention resulted in a 24-hour unanticipated re-entry of surgical intensive care units from 0.75% to 0.19%. The medical team's satisfaction with the care quality of the surgical intensive care unit was improved from 72.5% to 90.5%.

Conclusions: In the first half of 2016, 24-hour unanticipated re-admitted was no longer due to respiratory failure, but the

patient's disease. After intervention by TRM can enhance the intensive care unit is expected to return to occur, and thus maintain the patient care quality and safety.

NDP-37: THE RELATIONSHIP BETWEEN LEADERSHIP STYLE OF NURSING MANAGERS AND CARING BEHAVIORS OF NURSES

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Objective: The purpose of this study was to explore the relationship between nursing manager leadership and nurses' caring behavior. This is a cross-sectional, and correlational research. This study used purposive sampling. Nurses were dwelling and recruited from one Regional Teaching Hospitals and one medical center in eastern Taiwan for the study.

Materials and Methods: A structured questionnaire was used to demographic data of participants. Well established instrument, including The "Leader Behavior Description Questionnaire (LBDQ)" and "Caring Behaviors Scale (CBS)", were used to collect the information. Descriptive statistics, Independent Samples t test, Chi-Square test, Spearman correlation, Pearson correlation, ANOVA, Kruskal-Wallis test and Multiple Linear Regression were employed to analyze the data. A total of 261 nursing staffs were recruited in this study, the data were analyzed by using SPSS 18.0 statistic software.

Results: Result showed that: (1) Caring behaviors revealed significant difference in nurses's characteristics including different education level, ward, working years of the hospital, working years with the nursing manager ($P < 0.05$). (2) Nursing managers with different leadership style had different impact on the caring behaviors of nurses ($P < 0.05$). (3) Education level, ward, working years of the hospital, working years with the nursing manager and leadership style of nursing managers could predict the nursing caring behaviors ($P < 0.05$).

Conclusions: The results of the study showed that different characteristics of nurse staffs and different leadership style of nursing managers affected caring behaviors of staff. We suggested nursing managers should cultivate the positive leadership style (high consideration and high Initiating structure) to excite the nurses caring behaviors.

NDP-38: THE EFFICACY OF TEAM RESOURCE MANAGE- MENT TO IMPROVE SMOKING CESSATION REFER- RAL RATES FOR CARDIOLOGY WARD IN PATIENTS

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Objective: Smoking is one of the risk factors for lung cancer, cardiovascular diseases, and chronic obstructive pulmonary disease

(COPD). It severely threatens people's health, and becomes a main issue in public health worldwide. Smoking cessation improves disease prognoses and decreases the risk of sudden death in patients with coronary artery disease. Wish we can use team resource management help inpatient quit smoking in hospital.

Materials and Methods: Data analysis found cardiology ward smoking cessation referral rate only 28.6% in 2013. Strategies to raise this rate significantly included (1) develop a referral system, (2) case management training program, and follow-up procedures, (3) setting up an information system to facilitate smoking (4) setting up an information system to facilitate smoking cessation case management, and implementing smoking cessation education programs for clinical staff.

Results: Results showed the smoking cessation referral rate increased from 28.6% to 87.5% in our cardiology ward in during one year, in addition we follow-up six months smoking cessation rate from 27% to 57%.

Conclusions: Therefore, clinical staff should encourage and inspire their patients' motivation in hospital and use information system refer to case management follow up, in order to increase the success referral rate of smoking cessation.

NDP-39: COGNITION, BEHAVIOR AND EFFECTIVENESS OF HAND WASHING AMONG CAREGIVERS WHO HAD CHILDREN WITH DIARRHEA

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Objective: Improvement in occurrence of child diarrhea is associated with improved handwashing behavior. This study assessed change in primary caregivers' cognition and application of hand washing procedures and recurrence of diarrhea after a brief hand washing health education intervention. Also assessed were costs and benefits of hand washing intervention within hospital to improve health.

Materials and Methods: A longitudinal study design was adopted. Participants were primary caregivers (72% mothers) of children (n=100) between the ages of 0 and 6 years with a hospital diagnosis of diarrhea who received a brief individual educational intervention aimed at improving cognition and behavior related to hand washing. The intervention aimed to reduce occurrence of diarrhea. Data was collected at baseline, 1 week after the hand washing intervention, and at follow-up evaluation 1 month after the intervention.

Result: Both handwashing cognitions and behavior significantly improved from baseline to one week after the intervention (p<0.005) with improvement maintained at one month follow-up. Cost savings associated with child diarrhea also significantly reduce from 90% at baseline to 3% at one month follow-up. Results also indicated that primary caregivers with a higher educational level (high school or college) had significantly better performance of handwashing behavior compared with caregivers with lower education level (junior high school and below).

Conclusion: This research demonstrated that a brief educational intervention aimed at improving hand washing related cognition and behavior is effective in producing statistically significant change in both these areas and importantly leads to significantly reduced levels of diarrhea and associated health care costs.

NDP-40: THE RELATIONSHIP OF MUST SCORE AND SURVIVAL PERCENTAGE IN COLON CANCER PATIENT

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Objective: Malnutrition is the common nutrition issue in Cancer patient, there are above 20% Patient die because malnutrition, use Malnutrition universal screening tool, MUST can quickly screen out malnutrition patient, the purpose of this study is to realize the relationship of MUST score and survival percentage, thus, can give early intervention when Patient has higher MUST score to increase the survival percentage.

Materials and Methods: This is a retrospective study in hospital of south Taiwan, the data is collection from 2007-2013, analysis the relationship between MUST score change and the survival percentage, Total 709 Patient was collected in this study, exclude incomplete MUST score date, there are 211 patient was included, analysis the MUST score before treatment and three month later after treatment, compare the survival condition with Cancer Registry database in our hospital, separate patient to two groups, The same score or decrease group (S.D.G) and score Increase group (In.G).

Results: There are no difference with survival percentage in lower stage patient (Stage I, Stage II), In stage III patient, In.G has lower survival percentage than S.D.G (36.4% vs 76%, p<0.05), In stage IV patient, In.G has lower survival percentage than S.D.G (23.1% vs 39.6%, p<0.05).

Conclusions: The result of this study shows Increasing MUST score in colon cancer patient with Stage III and IV when treatment has lower survival percentage, Thus, Follow up MUST score of colon cancer and give aggressive nutrition intervention when MUST score increase, may helpful with survival percentage.

NDP-41: EFFECTS OF TETRANDRINE ON THE EXPRESSIONS OF MAMMALIAN TARGET OF RAPAMYCIN, PHOSPHATASE AND TENSIN HOMOLOG, HISTONE DEACETYLASE 1, HISTONE ACETYLTRANSFERASE OF GLIOMA CELLS

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Objective: The detailed mechanisms of tetrandrine-induced glioma cell death were still limited. We aimed to investigate

the effects of tetrandrine on the expressions of mTOR, PTEN, histone deacetylase 1, histone acetyltransferase (P300) of glioma cells.

Materials and Methods: The cell viability and the expressions of mTOR, PTEN, HDAC1, and P300 of RT-2 glioma cells were assayed under tetrandrine treatment for 48 hrs.

Results: The results showed that the cell viability of RT-2 cells at 48 hrs decreased significantly under treatment with

tetrandrine (5 μ M and above). The protein levels of mTOR and HDAC1 decreased significantly, whereas the protein levels of P300 increased significantly under tetrandrine treatment (5 μ M and above). But, PTEN did not increase significantly under tetrandrine treatment.

Conclusions: Tetrandrine could increase glioma cell death possibly via decreasing mTOR and HDAC1 expressions, but increasing P300 expression.

