METHODOLOGY
The 269 patients (onset age ≤35 years) enrolled were subjected to the EQ-5D-5L questionnaire upon recruitment. EQ-5D-5L consists of a descriptive page, which comprises 5 dimensions: mobility, self-care, usual activities, pain/discomfort, anxiety/depression with 5 response levels, and an EQ-VAS scale (0-100), which evaluates health status and health preference. Health states were validated against the Singapore valuation set.

RESULTS
Majority (72.1%) of the patients (mean ± SD age: 33.7 ± 13.8, diabetes duration: 10.5 ± 10.6) reported a full health state of "11111". Of the remaining patients, 15.2% and 14.9% reported problems of varying severity under pain/discomfort and anxiety/depression, respectively. Mean VAS score was 79.3 (range 30-100) with 29% reporting a score of ≤70. A longer duration of diabetes was found to be associated with lower VAS scores (≤70 or >70) (OR=1.04, 95% CI: 1.01-1.09, p=0.028) after adjusting for age, gender, ethnicity, BMI and HbA1c.

CONCLUSION
Our results suggest that patients with younger-onset and longer diabetes duration have lower self-rated quality of life. We identified pain/discomfort and anxiety/depression as two areas of concern that clinical care providers can focus on to better support patients in their diabetes care.

PP-D-12

RNA-SEQ ANALYSIS OF LIVER FROM NASH-HCC MODEL MOUSE TREATED WITH STREPTOZOTOCIN-HIGH FAT DIET

https://doi.org/10.15605/jafes.037.AFES.52

Linh Bui, Ryuto Tanaka, Yuki Sakakibara, Taishi Hashiguchi
SMC Laboratories, Inc., Ota-city, Japan

OBJECTIVES
NASH is a chronic liver disease, often associated with type II diabetes, which sometimes progresses to more serious conditions such as liver fibrosis and hepatocellular carcinoma (HCC). The STAM™ mouse shows the same pathological progression as human NASH patients, and has been widely used for both drug efficacy and basic research. In this study, we analyzed the RNA-seq data of STAM™ mouse at each pathological stage (steatosis, steatohepatitis, liver fibrosis and HCC) and examined the clinical correlation at the genetic level.

METHODOLOGY
NASH was induced in male mice by a single subcutaneous injection of streptozotocin 2 days after birth and feeding with high fat diet after 4 weeks of age. The mice were sacrificed and livers collected at 6, 8, 12 and 20 weeks of age. For liver samples, the left lateral lobe was snap frozen in liquid nitrogen and stored at -80°C for RNA-seq analysis. Total RNA of the cells was isolated using RNeasy mini kit.

RESULTS
The gene expression of the canonical pathways in NASH progression from steatosis to HCC were analyzed, such as immune system process, oxidation-reduction process and lipid metabolic process. Moreover, since it has been reported that genetic traits are involved in the development of NASH-HCC, we subsequently analyzed the genetic mutations in the STAM™ mice. The number of individual genes showing mutations in mTOR involved in Insulin signalling increases as the disease progresses, especially in the liver cancer phase.

CONCLUSION
These results indicate that gene profiles in the STAM™ mouse are clinically correlated.

PP-D-13

CLINICAL EFFECTIVENESS OF ONCE-WEEKLY DULAGLUTIDE AS ADD-ON TO SGLT2i IN THAI PATIENTS WITH T2DM: RETROSPECTIVE STUDY IN A REAL-WORLD SETTING

https://doi.org/10.15605/jafes.037.AFES.53

Yotsapon Thewjitcharoen, Nalin Yenseung, Waralee Chatchomchaun, Siriwan Butadej, Thep Himathongkam
Theptarin Hospital, Bangkok, Thailand

OBJECTIVES
Both GLP-1 receptor agonists (GLP-1 RA) and SGLT2 inhibitors (SGLT2i) reduce the risk of cardiovascular and renal complications when included as part of usual care in T2DM patients with established atherosclerotic cardiovascular disease (ASCVD) or multiple risk factors for ASCVD. Dulaglutide is a once-weekly GLP1-RA which became available in Thailand in 2018. This study aimed to show the real-world use of dulaglutide as add-on to SGLT2i among Thai patients with T2D in a specialized tertiary diabetes center.

METHODOLOGY
This retrospective cohort study included patients who were prescribed with dulaglutide for at least 1 month between 2018 and 2020 at Theptarin Hospital, Bangkok, Thailand. Primary (change in A1C) and secondary (including change in body weight, glycemic and weight-loss target achievement) endpoints were assessed at baseline and at follow-up visit.

RESULTS
A total of 41 patients (females 51.2%, mean age 56.9±13.4 years, duration of diabetes 15.7 ± 9.0 years, BMI 34.2 ± 5.8 kg/m^2, baseline A1C 8.5 ± 1.7%, SGLT2i-treated 48.8%, insulin-treated 51.2%, established ASCVD 9.8%) were included in the study. During a mean follow-up of 5.7 months after treatment initiation, the overall mean A1C reduction was 0.9% with weight loss of 2.3 kg. The proportion of patients who could achieve A1C < 7.0% increased from 12.5% to 31.4%. Among SGLT2i-treated patients, overall mean A1C reduction when compared with non SGLT2i-treated patients was 1.0 ± 1.3% and 0.8 ± 1.8%, respectively (p=0.716). Body weight reduction in SGLT2i users was -3.0 ± 4.7 kg while for non-SGLT2i users, it was -1.6 ± 3.4 kg (p=0.277). Reported adverse events were consistent with the known safety profile of GLP-1 RA.

CONCLUSION
In routine clinical practice among Thai patients with T2D, the combination of dulaglutide and SGLT2i was well tolerated and associated with sustained glycemic control and weight loss in a wide range of patients with T2D comparable with what has been observed in randomized clinical trials.

PP-D-14

ASSOCIATION BETWEEN ELEVATED PHASE ANGLE AND REDUCED RISK OF CHRONIC KIDNEY DISEASE PROGRESSION IN TYPE 2 DIABETES

https://doi.org/10.15605/jafes.037.AFES.54

Serena Low,[1] Sharon Pek,[1] Keven Ang,[1] Tavintharan Subramaniam,[2] Chee Fang Sum,[2] Su Chi Lim[1]
[1]*Khoo Teck Puat Hospital, Singapore*
[2]*Admiralty Medical Centre, Singapore*
[3]*Lee Kong Chian School of Medicine, Singapore*
[4]*Saw Swee Hock School of Public Health, Singapore*

OBJECTIVES
Phase angle (PhA) is a bioelectrical impedance analysis parameter defined as the angle of the vector formed by the body's resistance and reactance. It indicates nutritional status, with higher levels signifying healthier cell membrane and higher muscle mass. Currently, the association between PhA and chronic kidney disease (CKD) progression is unknown. Pigment epithelium-derived factor(PEDF) has anti-oxidant, anti-angiogenic and anti-inflammatory properties, and its circulating level may be elevated in CKD. We investigated the association between PhA and CKD progression, and the possible mediation of PEDF in this association among Type 2 Diabetes(T2D) patients.

METHODOLOGY
We conducted a prospective study on 868 patients (mean age 58.1 ± 8.6 years) from SMART2D cohort. PhA was measured using bio-impedance analysis. CKD progression was defined as deterioration across KDIGO estimated glomerular filtration rate(eGFR) categories with ≥25% decrease from baseline. Enzyme-linked immunosorbent assay was used to quantitate PEDF. We examined the association between PhA and CKD progression using Cox proportional regression, adjusting for demographics, clinical parameters and medications. This research has been approved by an ethical committee.

RESULTS
After a follow-up period of 8.6 years, 40.3% of participants had CKD progression. PhA is inversely associated with CKD progression with a hazard ratio(HR) of 0.69 (95% CI 0.61-0.79; p<0.001). The inverse association persists in fully adjusted analysis with HR 0.78 (95% CI 0.67-0.91;p=0.001). Binary mediation analysis revealed that PEDF accounted for 13.7% of association between PhA and CKD progression (p=0.028).

CONCLUSION
Our findings have revealed a previously unobserved association between higher PhA and reduced risk of CKD progression. This may pave the way for future studies on the role of PhA in monitoring renal decline.