RESULTS

Among 2532 patients (mean HbA1c 8.2 ± 2.0%, mean body mass index 29.8 ± 6.4 kg/m^2, 54.4% females), females were younger and less likely to smoke than males. Of the entire cohort, 99.5% were at ESC high-/very high cardiovascular risk categories, wherein 70.3% of females and 78.6% of males were at very high-risk (p<0.001). Compared with males, more females attained BP <130/80 mm Hg (68.8% versus 62.2%; p<0.001), but not LDL-cholesterol <1.8 mmol/L (21.8% versus 31.5%; p<0.001) and all ABC targets (5.2% versus 7.3%; p=0.040). Fewer females were treated with SGLT2i (37.9% versus 44.2%; p=0.002), RASi (63.0% versus 69.6%; p<0.001) and statins (87.8% versus 92.6%; p<0.001) than males.

CONCLUSION

In this very high-risk T2D group, more males attained optimal risk factor control than females. Health services and mechanistic research are needed to explain the differences in risk profiles and treatment patterns.

PP-D-10

DEVELOPMENT AND EVALUATION OF AN ALTERNATIVE OBESE RAT ANIMAL MODEL OF TYPE 2 DIABETES

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OBJECTIVES

The aim of this study was to develop and evaluate of an alternative obese rat model for type 2 diabetes.

METHODOLOGY

Forty, 6-week-old, male Wistar rats were randomly divided into 5 groups as: Normal Control (NC), Diabetic Control (DC), Saccharin low 0.033% (SACL), Saccharin medium 0.067% (SACM) and Saccharin high 1.33% (SACH). The DC group was only given 10% fructose in water while the SACL, SACM and SACH groups were supplied with 0.03%, 0.067% and 0.13% saccharin respectively, in combination with 10% fructose in drinking water for 4 weeks only, while the animals in NC group were fed with normal drinking water. Thereafter, all animals were given normal drinking water for the remaining period of the study and fed with commercially available rat chow diet ad libitum for the duration of the study. The Body Mass Index (BMI) of the animals were measured weekly, with a BMI ≥0.69 g/cm2 considered obese. Once obesity was confirmed, all rats in DC and SAC groups were injected intraperitoneally with a low dose (40 mg/kg BW) of streptozotocin (STZ) dissolved in 0.1 M citrate buffer (pH 4.5), while the animals in NC group were injected with an equivalent volume of citrate buffer. One week after the STZ injection, animals with a non-fasting blood glucose level ≥200 mg/dl were considered diabetic.

RESULTS

After the 13-week experimental period, the SACL group demonstrated a sustainably higher BMI and obesity level, higher blood glucose level as well as better anti-diabetic drug sensitivity, more insulin resistance, lower glucose tolerance and partial pancreatic β-cell damage in comparison to the other diabetic groups.

CONCLUSION

Considering all above, the 10% fructose along with 0.033% saccharin fed and STZ (40 mg/kg BW) injected group could be a suitable animal model of obesity-related type 2 diabetes.

PP-D-11

EVALUATING HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH YOUNG-ONSET TYPE 2 DIABETES IN SINGAPORE USING EuroQol EQ-5D-5L

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OBJECTIVES

Despite multiple efforts to create awareness and reduce the rise of young-onset T2D (YT2D), the prevalence of YT2D remains high in Singapore. There is also limited information on how YT2D patients have been coping with their chronic condition. We hypothesize that YT2D patients face a myriad of challenges in their daily routine and aim to determine specific areas to focus on for providing patient-centred care.

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

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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

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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.