CONCLUSION: Our study showed that Gram-negative bacteria were the most common pathogens in diabetic foot infections which had highest sensitivity to meropenem. Definitive therapy should be based on the result of both the cultures and susceptibility data of antimicrobial and the clinical response to the empirical regimen.

OCS-21-5
Diabetes is a Risk for Foot Complication

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AIMS: Aims of this study were to compare risk of foot complications among DM patients and healthy subjects.

METHODS: Case-control study included 200 DM patients and 200 healthy subjects. Risk of foot complications (peripheral neuropathy and peripheral artery disease) were diagnosed by questionnaire and foot examination. DM and healthy groups were compared by clinical and laboratory findings.

RESULTS: Mean age, height, body fat of DM patients and healthy subjects were not different ($P > 0.05$), but mean weight, BMI, waist and hip circumferences, waist and hip ratio, blood pressure, fasting blood glucose, HbA1C, insulin, total cholesterol and triglyceride levels were high in DM patients compare with healthy subjects ($P < 0.01$). Result of foot examination showed DM and healthy groups were not statistically different by foot deformity (3.5% *vs* 2.5%, $P = 0.766$), callus (23.0% *vs* 16.5%, $P = 0.324$), fissure (5.0% *vs* 0.0%, $P = 0.154$), foot ulcer (7.5% *vs* 2.5%, $P = 0.258$). But DM and healthy groups were statistically different by nail disease (29.5% *vs* 2.5%, $P = 0.0001$), dry skin of foot (77.0% *vs* 56.0% $P = 0.008$). Prevalence of peripheral neuropathy (PN) among DM patients and healthy subjects were 72.0% and 7.5%. Symptoms of peripheral artery disease (PAD) among DM patients and healthy subjects were 50.5% and 25.0%. Result of logistic regression analysis showed DM patients have 30 times higher risk of PN (OR = 30.1, $P = 0.0001$) and three times higher risk of PAD (OR = 3.06, $P = 0.003$) compare with healthy subjects, respectively.

CONCLUSIONS: Diabetes is a risk for foot complication.

OCS-21-6
Association of Pulmonay Function with Glucose Tolerance Status in Korea: The 2007–2009 Korean National Health and Nutrition Examination Survey

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We tried to evaluate the association of glucose tolerance status with pulmonary function. From the fourth Korea National Health and Nutrition Examination Survey in 2007–2009, laboratory test, nutritional survey, and pulmonary function test data from 9223 persons including 4119 men and 5104 women [age, 49 years (19–90)], were examined. Restrictive lung disease was defined as forced expiratory volume 1 s (FEV1)/forced vital capacity (FVC) >0.7 and predicted FVC < 80%. The participants were divided into five groups by fasting plasma glucose (FPG); normal fasting glucose (NFG) 1: FPG < 90 mg/dL, NFG2: FPG 90–99 mg/dL, impaired fasting glucose (IFG)1: FPG 100–109 mg/dL, IFG2: FPG 110–125 mg/dL, and DM: FPG ≥ 126 mg/dL. After adjusting for age, smoking, and other variables predicted FVC % was decreased with deterioration of glucose tolerance in each sex (men, mean ± SEM, 92.0 ± 0.3 in NFG1, 91.9 ± 0.3 in NFG2, 92.0 ± 0.4 in IFG1, 90.2 ± 0.7 in IFG2, and 89.9 ± 0.5 in DM, $P = 0.004$; women, 93.7 ± 0.3 in NFG1, 93.7 ± 0.3 in NFG2, 93.1 ± 0.5 in IFG1, 91.1 ± 0.9 in IFG2, and 90.7 ± 0.6 in DM, $P < 0.001$). Even after adjusting for other clinical parameters, the significance was persisted. However, there was no association of predictive FEV1% with glucose tolerance status. In logistic regression analysis with several clinical parameters, proportion of resrictive lung disease of NFG2 or IFG1 was not different compared to that of NFG1. However, the odds ratio (95% CI) for restrictive lung disease in IFG2 was 1.58 (1.19–2.10), $P = 0.002$, and that in DM was 1.49 (1.18–2.10), $P = 0.001$ with NFG1 as a control group. The data suggested the risk of restrictive lung disease may begin to increase in FPG range of 110–125 mg/dL in Korean population.

OCS-22-1
Trends in the Use of Oral Antidiabetic Drugs by Diabetes Specialists In Japan, 2002–2011

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PURPOSE: To describe trends in the use of oral antidiabetic drugs (OADs) by diabetes specialists in Japan, 2002–2011.

METHODS: A cross-sectional study design was implemented using data of type 2 diabetes of 24 facilities from JDDM database in 2002, 2005, 2008, 2011. The number of patients were 12,529 in 2002 and 22,961 in 2011.

RESULTS: The percentage of OAD therapy was 52–53% during 2002–2008 and increased to 57% in 2011. Among the OAD group, the monotherapy had been decreased from 53% in 2002 to 36% in 2011 and the combination therapy using more than three drugs had been increased from 12% to 31%. As monotherapy the sulfonylurea (SU) was markedly decreased from 38% to 13% and the biguanide (BG) was increased from 4% to 9%. As combination therapy, SU was used as much as BG which was increased 1.5 times. The α-glucosidase inhibitor had been used constantly and thiazolidine and glinide had been increased gradually by 2011, when the usage of all three drugs were dropped and replaced by DPP-4 inhibitor (DPP4). In 2011, DPP4 was used 7% as monotherapy and 24% as combination therapy. The average HbA1c (JDS) was improved from 7.2% in 2002 to 6.7% in 2011.

CONCLUSION: The trends of the decrease of SU and the increase of BG usage were obvious. The DPP4 had become the third commonly used drug after 1 year on the market. The prescribing patterns of OADs are moving toward combination therapy, especially triple oral therapy.

OCS-22-2
Oral Hypoglycemic Agents and the Development of Cardiovascular Events in Patients with Type 2 Diabetes Mellitus

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OBJECTIVE: To assess the risk of cardiovascular (CV) events among patients with type 2 diabetes mellitus (T2DM) who are taking acarbose, metformin, glimepiride or glyburide.

METHODS: Using the National Health Insurance Research database in Taiwan, this retrospective cohort study identified 2862 patients with DM newly diagnosed from 1998 to 2007, 30 years of age and above, without a history of CV disease at the baseline. Patients with cancer, liver cirrhosis or chronic kidney disease were excluded. Based on the prescription, patients were grouped into four medication subcohorts: acarbose ($n = 61$), metformin ($n = 1250$), glimepiride ($N = 708$) or glyburide ($N = 843$) for more than 70% and other hypoglycemic agents for <30% of the follow-up period, by the end 2009. Incidence and hazard of CV events including coronary artery disease, peripheral artery disease, stroke and heart failure among these four subcohorts were compared.

RESULTS: The overall incidence of CV events was the highest for patients taking glyburide (86.9 per 1000 person-years), followed by taking acarbose, glimepiride and metformin (73.4, 48.1 and 35.9 per 1000 person-years, respectively). Compared with patients taking glyburide, the adjusted hazard ratios were 1.03 [95% confidence interval (CI) 0.62–1.71] for those taking acarbose, 0.59 (95% CI 0.48–0.72) for those taking glimepiride, and 0.48 (95% CI 0.40–0.57) for those taking metformin.

CONCLUSIONS: T2DM patients taking metformin and glimepiride are at lowered risk of CV events than those taking glyburide, but taking acarbose might have no association with subsequent CV events. Metformin could prevent more CV events than other oral hypoglycemic agents.

