

Oral Presentations

O1 Validity of dietary glycemic load as a predictor of postprandial glycemia and insulinemia in lean, young healthy adults

J BAO¹, F ATKINSON¹, P PETOCZ², W WILLETT³,
J BRAND-MILLER¹

¹*Boden Institute of Obesity, Nutrition & Exercise, the University of Sydney, Sydney, Australia;* ²*Department of Statistics, Macquarie University, Sydney, Australia;* ³*Harvard School of Public Health, Harvard University, USA*

Background: The concept of dietary glycemic load (GL, defined as the mathematical product of the glycemic index (GI) and carbohydrate content of a serving of food) is increasingly used in nutritional epidemiology. Its ability to predict postprandial glycemia and insulinemia for a wide range of foods or mixed meals is unclear.

Objective: To determine the degree of association between calculated GL and glucose and insulin responses in healthy subjects consuming iso-energetic portions of single foods and meals.

Design: In study one, groups of healthy subjects consumed 1000 kJ portions of 121 single foods in 10 food categories. In study two, healthy volunteers consumed 2000 kJ of 13 mixed meals. Foods and meals varied widely in macronutrient content, fibre and GL. Glycemia and insulinemia were quantified as incremental area under the curve relative to a reference food (=100).

Outcomes: GL was the strongest predictor of the observed glucose and insulin responses induced by single foods ($r = 0.92$ and 0.77 respectively, both $P < 0.001$), accounting for 84% and 59% of the variation in glucose and insulin responses respectively. For mixed meals, responses varied over a five-fold range and were strongly correlated with GL ($r = 0.76$, $P = 0.002$ for glucose and $r = 0.68$, $P = 0.01$ for insulin). In contrast, macronutrients and fibre were not significant predictors of either response.

Conclusion: The findings provide robust support for the physiological validity of GL in predicting both postprandial glycemia and insulin demand to a wide variety of foods and meals.

O2 Cut-off value of 50 g glucose challenge test for the diagnosis of gestational diabetes mellitus

D BORIBOONHIRUNSARN, T LERTBUNNAPHONG,
P KHANMALI

Department of Obstetrics and Gynecology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Objective: To determine the cut-off value of 50 g glucose challenge test (GCT) for the diagnosis of gestational diabetes mellitus (GDM) among Thai pregnant women.

Materials and Methods: A total of 816 pregnant women who were at risk for GDM and had abnormal result of 50 g GCT (≥ 140 mg/dL) before 20 weeks' gestation were enrolled. All received 100 g oral glucose tolerance test (OGTT) for the diagnosis of GDM. This 2-step approach was repeated during 24–28 weeks' gestation among those

with normal 100 g OGTT results. Different cut-off values of 50 g GCT for the diagnosis of GDM were evaluated.

Results: Mean age was 32.4 ± 5.1 years, and mean gestational age when 50 g GCT was performed was 10.1 ± 5.9 weeks. GDM was diagnosed in 290 cases (35.5%) and mean gestational age at diagnosis was 19.1 ± 10.3 weeks. The risk of GDM increased with 50 g GCT values. Of 19 and 13 women whose 50 g GCT values were ≥ 230 mg/dL and ≥ 240 mg/dL, 90.5% and 100% were diagnosed with GDM respectively. Cut-off levels for GDM diagnosis among common risks were ≥ 230 mg/dL for family history of DM, ≥ 240 mg/dL for age ≥ 30 years, and ≥ 220 mg/dL for obesity (BMI ≥ 27 kg/m²). Results of 50 g GCT were not clearly related to GDM classification. However, among GDM cases whose 50 g GCT < 200 mg/dL, 99.1% were in class A1.

Conclusion: 50 g GCT before 20 weeks' gestation could be applied and used for diagnosis of GDM using appropriate cut-off value.

O3 Profiles of cardiovascular risk in people with type 2 diabetes: baseline data from a1chieve study

LM CHUANG¹, Z HUSSEIN², MI HASAN³, P HOME⁴,
C SHEN⁵, ME KHAMSEH⁶

¹*National Taiwan University Hospital, Taipei, Taiwan;*

²*Hospital Putrajaya, Putrajaya, Malaysia;* ³*Diabetic Institute*

Pakistan (DIP), Lahore, Pakistan; ⁴*The Medical School,*

Newcastle Upon Tyne, UK; ⁵*Novo Nordisk Pharmaceuticals,*

Beijing, China; ⁶*Tehran University of Medical Sciences, Tehran,*

Iran

People with type 2 diabetes (T2DM) are at high risk of developing cardiovascular disease. Baseline data from the A1chieve observational study provide epidemiological data on cardiovascular risk profiles of people with T2DM ($n > 30,000$ for all measures) in 28 countries from Asia, Africa, Europe and Latin America. Regional diversity was found in the prevalence of elevated BMI (> 30.0 kg/m²), being 6.0% in China and 56.1% in Russia. Systolic blood pressure (sBP) was 133 (SD 20) mmHg. Regionally mean total serum cholesterol (TC) ranged from 4.7 (north Africa) to 6.0 mmol/L (Russia). Mean sBP was also lowest in north Africa and highest in Russia, 127 and 144 mmHg respectively, while TC was 5.2 (1.3) mmol/L, and LDL-C, HDL-C and triglycerides (TG) were 3.1 (1.1), 1.2 (0.4) and 2.1 (1.1) mmol/L, respectively. The overall percentage of patients failing to reach IDF-recommended target values of LDL-C < 2.5 , HDL-C > 1.0 , TG < 2.3 mmol/L and sBP < 130 mmHg were 70.1, 35.3, 30.8 and 43.9%, respectively. The overall prevalence of microalbuminuria was 24.8%, with the highest prevalence in people from the Middle East/Gulf region (37.9%). Overall, proteinuria was reported in 6.4%, with marked regional variation from 2.4% (east Asia) to 12.2% (north Africa). Of 40,456 people not achieving target values, only 26.2% were being treated with ACE inhibitors, 22.4% with aspirin and 20.1% with statins. Thus, overall control of cardiovascular risk globally is poor, with many people with T2DM not meeting guideline targets for risk protection.

O4 Diabetes mellitus following liver transplantation: incidence, glucose monitoring and treatment options in single centre

I DASKALOVA¹, I TAKAROV², E ODISSEVA³,
T LUKANOVA³, R VELICHKOVA², N VLADOV²

¹Clinic of Endocrinology, Military Medical Academy, Sofia, Bulgaria; ²HPB and Transplant Surgery, Military Medical Academy, Sofia, Bulgaria; ³Anesthesia and Intensive Care Department, Military Medical Academy, Sofia, Bulgaria

New-onset diabetes mellitus (NODM) is a common metabolic complication following liver transplantation, developed in approximately 15–20% of patients. It is associated with poor outcomes in regard to a graft function and a patient survival. The aim of this study was to evaluate the incidence and risk factors for diabetes after liver transplantation in Bulgarian population. All 24 patients, who underwent liver transplantation at MMA, Sofia from April 2007 to November 2010 were retrospectively reviewed and enrolled in the study. 20 of them were male and 4 female with median age 43 years. HCV, HBV and CMV status, recipient gender, age and body mass index, pre-transplant arterial hypertension, serum glucose level, total insulin dose used and immunosuppressive therapy were collected for each patient. Tight glycaemic control using continuous glucose monitoring and insulin pump application was made perioperatively. We have registered a new onset of DM in six of our patients. Everyone of the examined group developed transient glucose intolerance within the first two post transplant weeks. Patients, who developed PTDM are males with alcoholic etiology of liver insufficiency, with overweight or obesity. We did not find a significant correlation of PTDM with presence of HCV-, CMV-infection and pre-operative hypertension. No increased percentage of graft rejection in this group was observed. On the sixth month after transplantation five of the presented recipients required insulin treatment, but one who developed reversible DM. The clinical impact of NODM has been underestimated in the past. Prevention of NODM after liver transplantation requires a planned and concerted effort, with thorough screening and risk assessment of candidates and adherence to a regular schedule of glycaemic monitoring for all allograft recipients. The greatest attention must be paid on the modifiable factors – the obesity in the pre-operative period and individualization of the immunosuppressive therapy.

O5 Single nucleotide polymorphisms of protein tyrosine phosphatase 1B and risk of hypertension

P GU¹, H DU¹, B LU¹, J SHAO¹, D ZOU²

¹Department of Endocrinology, Nanjing General Hospital of Nanjing Military Command, Nanjing, China; ²Department of Endocrinology, Changhai Hospital, Second Military Medical University, Shanghai, China

Aim: To investigate whether Protein tyrosine phosphatase (PTP1B) Single nucleotide polymorphisms (SNPs) are associated with hypertension and hypertension related metabolic traits in Chinese subjects. **Methods:** A total of 239 Chinese patients with hypertension and 141 non-hypertensive subjects were screened. The genotypes of PTP-1B gene polymorphisms were determined by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) methods. **Results:** The case-control study showed associations between the frequencies of T allelic g54281 T>A and A allele of I5/37C>A and hypertension. ($P < 0.0001$, $P = 0.0371$ respectively). In addition,

significant associations were observed between the IVS6 + G82A polymorphism and waist circumference, total cholesterol and LDL levels in hypertensive patients ($P = 0.0005\sim 0.0260$). And g54281 T allele was associated with higher plasma triglyceride ($P = 0.0390$) and LDL-cholesterol concentration ($P = 0.0141$). While g58585 T>C was associated with BMI ($P = 0.0308$), waist circumference ($P = 0.0216$) and HOMA-IR ($P = 0.047$). Multivariate logistic regression analysis showed that T allele carriers of g54281T>A and A allele carriers of I5/37C>A had higher risks of hypertension independent of age, gender, BMI, glucose levels and lipids profiles (OR: 1.79, 95% CI: 1.09–2.96, $P = 0.02$; OR: 1.66, 95% CI: 1.13–2.44, $P = 0.01$, respectively).

Conclusions: PTP1B polymorphisms contribute to pathogenesis of hypertension in Chinese subjects, and PTP1B SNPs may be involved in the development of several features including dyslipidemia and obesity in hypertension subjects.

O6 Cardiovascular safety of liraglutide: a pooled analysis from phase II and III liraglutide clinical development studies

YY HUANG¹, SP MARSO², AC MOSES³, MJ ZYCHMA³, JB BUSE⁴

¹Chang Gung Memorial Hospital, Taiwan; ²Saint Luke's Mid America Heart and Vascular Institute, Kansas City, MO; ³Novo Nordisk, Bagsvaerd, Denmark; ⁴University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC

Introduction: Liraglutide is a human glucagon-like peptide-1 analog approved for patients with type 2 diabetes. The US FDA currently recommends analysis of major adverse cardiovascular events (MACE) for new anti-diabetes drugs. The objective of this work was to perform a retrospective MACE analysis of the liraglutide development studies.

Methods: Pooled analysis of patients in all completed intermediate/long-term randomized trials plus open label extensions of liraglutide drug development studies. Individuals with and without type 2 diabetes age 18–80, hemoglobin A1c 7–11% and BMI <45 kg/m² exposed to liraglutide 0.045–3.0 mg/day, active control or placebo were included. MACE (death, MI or stroke) were retrospectively identified using medical dictionary for regulatory activities terms with 3 search categories of varied sensitivity that were based on the number of search terms associated with MI and stroke.

Results: In 15 phase 2 and 3 trials including 6,638 patients, there were a total of 44, 43, and 32 serious MACE using broad, narrow and custom search criteria, respectively. After expert evaluation, 39, 39 and 31 serious MACE identified using broad, narrow and custom criteria, respectively, were adjudicated as MACE. The point estimate of the incidence ratio for MACE associated with liraglutide was <1.0 for each MedDRA search.

Conclusions: In each MACE analysis, the point estimates for liraglutide was <1.0 and upper 95% CI was <1.8, a specified upper bound in FDA guidance for new anti-diabetes drugs. Liraglutide will be prospectively evaluated in LEADERTM, a large scale, international, randomized controlled cardiovascular outcomes trial.

07 High serum IgA concentrations and risks of impaired fasting glucose, hypertension, and hypercholesterol among children

CC LIAO¹, FC SUNG², TC SU³, KL CHIEN³, YT LEE⁴

¹Department of Anesthesiology, Taipei Medical University Hospital; ²College of Public Health, China Medical University; ³Division of Cardiology, Departments of Internal Medicine, National Taiwan University Hospital; ⁴Division of Cardiology, Departments of Internal Medicine, China Medical University Hospital

Objective: We evaluated the relationship between levels of immunoglobulin A (IgA) and impaired fasting glucose, hypertension and hypercholesterol among children.

Methods: From 1992 to 2000, a nationwide mass urine screening was conducted to identify proteinuria, glucosuria, and/or hematuria for all school graders in Taiwan Province. Students with urine screening positive twice received health check-up for anthropometric measures and selected blood tests including fasting glucose, total cholesterol, albumin, blood urea nitrogen, and creatinine. We stratified IgA concentration into deciles levels for measuring the associations with impaired fasting glucose and interaction with obesity.

Results: Among 92514 students with screening positive, the median IgA level increased from 94 mg/dL in the lowest decile to 348 mg/dL in the highest decile with a median of 190 mg/dL. Mean age, body mass index, fasting glucose, blood pressure, and total cholesterol increased as IgA increased, with impaired fasting glucose increased from 11.0% in the lowest decile to 19.0% in the highest ($P < 0.0001$). The corresponding prevalence of hypertension increased from 7.5% to 10.8%, respectively ($P < 0.0001$). School children with an IgA in the highest decile had an adjusted odds ratios of 1.77 (95% confidence interval [CI] = 1.62–1.93) for impaired fasting glucose; the odds ratio increased to 2.93 (95% CI = 1.93–4.44) for obese children.

Conclusions: Our findings showed that children with higher IgA are at higher risk of impaired fasting glucose, particularly for obese children with high IgA.

08 The ratio of leg-length over standing height as a predictor of childhood obesity: results from a longitudinal cohort study

J LIU¹, N AKSEER¹, B FAUGHT¹, J HAY¹, J CAIRNEY²

¹Brock University, St. Catharines, Canada; ²McMaster University, Hamilton, Canada

Using data from a longitudinal cohort, we examined if leg-length to height ratio (LLHR) measured at Grade Five was associated with obesity risk at Grade Eight. A total of 1167 children (575 girls and 594 boys) from South Ontario, Canada who had no missing information on body compositions in Grade Five and Grade Eight were included in this analysis. Based on LLHR gender specific quartile cutoffs in Grade Five, children were categorized into four groups (Q1–Q4). Body mass index (BMI) was derived from weight (kg) and height (cm) measured at Grade Eight; the gender and age specific BMI cutoffs were used to categorize children as overweight/obese or normal weight. Logistic regression models were used to examine the obesity risk association with LLHR. After adjusting for age, total physical activity score and waist circumference measured at Grade Five, in comparing to those in Q1 of LLHR, the odds ratios (OR, 95%CI) of overweight/obese for those in the Q2–Q4 were 0.60 (0.29, 1.21), 0.43 (0.21, 0.89), and 0.32 (0.15, 0.70) for boys, and 0.77 (0.36,

1.64), 0.60 (0.28, 1.29), and 0.27 (0.12, 0.62) for girls, respectively. The P-values for trends were statistically significant in both genders ($P < 0.0001$). When further adjusting early life experience variables among a subsample ($n = 566$), the risk association pattern did not change. The obesity risk association with LLHR remains even after removing those who were considered as overweight/obese at Grade Five. This suggests that LLHR can be considered as a potential screening tool to estimate obesity risk among children.

09 Intra- islet protein- tyrosine phosphatase 1B α regulator of glucose- stimulated insulin secretion?

B LU¹, H WU², P GU¹, H DU¹, J SHAO¹, D ZAO²

¹Department of Endocrinology, Nanjing General Hospital of Nanjing Military Command, Nanjing, China; ²Department of Endocrinology, Changhai Hospital, Second Military Medical University, Shanghai, China

Aim: The aim of present study was to investigate the effects of intra-islet inhibition of protein-tyrosine phosphatase 1B expression on glucose-stimulated insulin secretion (GSIS).

Methods: Twenty ten-week-old SD rats were randomly assigned to a regular diet (RD) or a high-fat diet (HFD) for 8 weeks. At the end of study, fasting glucose, fasting insulin concentration and lipid profile were measured and IPGTT was done after 12 h fast. Recombinant adenoviruses containing siPTP1B (Ad-siPTP1B), or siControl (Ad-siControl) sequences were constructed. Islets were isolated and transfected and then assigned to Ad-siPTP1B group, Ad-siControl group, and mock control group. RT-PCR and Western blot were used to evaluate the expression level of PTP1B, GLUT-2 and glucokinase. Batch incubation and islet perfusion were performed to evaluate kinetics of insulin release.

Results: Intra-islet PTP1B expression in HFD group was higher than that of RD group. GSIS was impaired in islets of HFD rats ($p < 0.05$). Ad-siPTP1B treatment resulted in 73% decrease in PTP1B mRNA levels and 61% decrease in PTP1B protein ($p < 0.05$). Simultaneously, PTP1B inhibition resulted in 4.7–0.8-fold increase of GSIS from basal ($p < 0.05$). Perfusion showed notable improvement of first-phase insulin secretion by Ad-siPTP1B treatment. And significant decrease of both GLUT-2 and GCK were found in HFD group C while up-regulation of both were achieved after PTP1B inhibition.

Conclusions: Intra-islet PTP1B is an important physiological regulator of glucose-induced insulin release.

010 Association of maternal BMI with adverse pregnancy outcomes- difference between South Asian, South East Asian and Australian women

N MOIN, S HENDON, J BRADFORD, P HENRIKSSON, M MCLEAN

University of Western Sydney and Blacktown Hospital, Sydney, Australia

Maternal obesity is strongly associated with adverse pregnancy outcome, but these data have mostly been derived from American or European populations. Different ethnic groups have differences in body size and composition and we should not assume similar degrees of risk at the same level of BMI. There is a need for ethnic specific classification of the association of BMI with obstetric risk. Our hospital network

in Western Sydney serves an ethnically diverse population. 50% of women attending the Obstetric Service are born outside Australia. The most prevalent immigrant groups are from South Asia (Indian sub-continent) or South East Asia. We used a computerized database of women giving birth in Western Sydney to examine the association between maternal BMI and pregnancy outcome. We compared women born in South Asia (SA, $n = 4783$), South-East Asia (SEA, $n = 4026$) or Australia ($n = 18061$) for composite measures of: (1) adverse foetal outcomes (stillbirth, foetal anomaly, macrosomia, admission to NICU); (2) adverse maternal outcomes (hypertension, diabetes, need for assisted conception) and (3) Assisted delivery (Caesarean or Instrumental). There was a graded increase of all three types of adverse events with increasing maternal BMI, in all three populations. At any given BMI range >20 women from SA and SEA had more adverse events than Australian-born women, and their obstetric risk started to rise at a relatively lower BMI. Australian-born, but not SA or SEA-born women had more adverse foetal events at a BMI.

O11 The outcome of beta cell function after early insulin therapy in the recently diagnosed type 2 diabetes (in Egyptian population) our experience in El-Minia University Hospital

YM MOSA¹, AM MOHAMED¹, SH EL HINI¹, MS KAMEL¹, AS SALAMA¹, GM EL SAGHEER¹, AM OSMAN²

¹Internal medicine department, Minia University, Egypt;

²Clinical Pathology Department, Minia University, Egypt

The purpose of this prospective cohort study was to evaluate whether early insulin therapy is more advantageous in achieving long-term optimal glycemic control with improved B cell function than oral drugs in the recently diagnosed type 2 diabetes mellitus. Methods: Sixty consecutive patients with recently diagnosed type 2 diabetes mellitus were divided into 3 groups. The 1st group received 2 SC injections of premixed insulin. The 2nd group received bed time NPH and 3 injections of regular insulin before meals. The 3rd group received metformin and/or sulphonylureas. The treatment continued for 3 months till euglycemia was reached. Then, all medications were stopped and the patients were followed up till the end of the year. BMI, FBG, PPG, HbA1C, fasting level of insulin, proinsulin, C-peptide, HOMA-IR, HOMA-B, serum cholesterol, triglycerides were estimated. Results: Six patients from group I (30%), nine from group II (45%), and only one from group III (5%) succeeded to maintain euglycemia without further therapy for 9 months after stoppage of treatment. The mean HbA1C level was 6.5% in group I, 6.1% in group-2, and $>7\%$ in the group-3. Level of HbA1C in the succeeded patients declined significantly in comparison to the failed patients. Markers of B-cell function of the succeeded patients showed a statistical significant increase regarding the C-peptide, insulin and HOMA-B. Meanwhile, proinsulin level declined from 24.99 ± 0.99 before treatment to 18.2 ± 5.1 after treatment ($P = 0.0001$) and proinsulin/insulin ratio declined from 40.9 ± 14.5 before treatment to 18.19 ± 5.13 after treatment ($P = 0.0001$). The total serum cholesterol declined from 206.3 ± 36.7 before treatment to 176.3 ± 42.3 ($P = 0.001$) and triglycerides reduced significantly from 213.9 ± 79.1 before treatment to 160.3 ± 54.4 after treatment ($P = 0.001$) of insulin treated groups. Conclusions: Short-term insulin therapy in a newly diagnosed type 2 diabetes insulin naive patients can preserve B-cell function and insulin secretion, allowing long-term glycemic control without medication and may improve glycemic responses to supplemental oral treatment if needed.

O12 The protective effects of telmisartan on intra-islet microvasculature in db/db mice

J SHAO, P GU, H DU, B LU

Department of Endocrinology, Nanjing General Hospital of Nanjing Military Command, Nanjing, China

Objective: Several epidemiological studies suggested that treatment with angiotensin II type 1 receptor blocker provided a risk reduction of developing type 2 diabetes. Yet the mechanisms remain to be elucidated. The aim of present study was to explore the effects of telmisartan on intra-islet microvasculature in db/db mice.

Methods: Twenty-two db/db mice, 8 weeks of age, were randomized to telmisartan 5 mg/kg and placebo via gavage for 6 weeks. Eleven age-matched db/misty mice were studied concurrently treated with placebo as non-diabetic controls. Body weight and random blood glucose were measured every week. After 6 weeks' treatment, Intraperitoneal glucose tolerance test, immunohistochemical staining of platelet endothelial cell adhesion molecule 1 (PECAM1) were performed. Islets were isolated and perfusion were performed to evaluate kinetics of insulin release by using islet perfusion system. The ultrastructure of intra-islet microvasculature was observed by electron microscopy.

Results: Six weeks' telmisartan treatment improved glucose tolerance, insulin secretory function and insulin sensitivity. And islet beta-cell mass was greatly rescued. Telmisartan treatment also improved first-phase insulin response. And telmisartan treatment greatly increased expression levels of PECAM1 in islets. Electron microscopy showed more fenestration and caveolae in Telmisartan treatment group. These results indicate that the beneficial effects of telmisartan on glucose metabolism at least partly due to improved quality and quantity of blood vessels in the islets.

Conclusions: Telmisartan treatment remarkably increased intra-islet microvasculature volume, and improved early-phase insulin secretion, thus protected beta-cell function.

O13 Corneal confocal microscopy: a novel non-invasive method for early diagnosis of diabetic peripheral neuropathy

C XUE¹, J SHAO², Z HUANG¹

¹Department of Ophthalmology, Nanjing General Hospital of Nanjing Military Command, Nanjing, China; ²Department of Endocrinology, Nanjing General Hospital of Nanjing Military Command, Nanjing, China

Objective: Corneal confocal microscopy is a novel, rapid, non-invasive in vivo clinical examination technique. We aimed to explore the alterations in the early corneal innervation in relation to diabetic peripheral neuropathy using laser confocal microscopy.

Methods: Forty-five type 2 diabetes were recruited and stratified into diabetic peripheral neuropathy group (DPN), non-neuropathy diabetic group (NDPN) and 10 age-matched healthy control subjects were studied. Diabetes duration, fasting plasma glucose, and HbA1C were recorded. All underwent corneal confocal microscopic examination using the Heidelberg retina tomograph II with the Rostock corneal module. The following parameters were measured and analyzed: (1) Nerve fibre length (NFL); (2) Nerve branch density (NBD); (3) Tortuosity coefficient (Tc).

Results: There were no significant differences of diabetes duration, fasting plasma glucose, and HbA1C between DPN and NDPN group at recruitment. Corneal epithelium nerve was straight and few bifur-

cation in control group. Corneal NFL was significantly decreased in DPN group when compared with control group and NDPN group ($P < 0.05$). NBD was increase in NDPN group, but greatly decreased in DPN group when compared with control group ($P < 0.05$). Tc was significantly increased in in NDPN group, further aggravated in DPN group ($P < 0.05$). Correlation analysis revealed that there were no significant correlation of age, diabetes duration, fasting plasma glucose, and HbA1C with NFL, NBD and Tc.

Conclusions: Corneal confocal microscopy is a rapid, non-invasive in vivo clinical examination technique which accurately defines the extent of corneal nerve damage and acts as a surrogate measure of diabetic neuropathy.

O14 Association of Paraoxonase 1 gene polymorphism with intima-media thickness (IMT) of the carotid arteries in Japanese type 2 diabetic patients

I YAMAMOTO¹, T HONDA¹, K TAKADA¹, M MAEDA², S NONEN², T MOTOMURA³, K MAEDA³, Y FUJIO⁴, J AZUMA²

¹Azabu University, Kanagawa, Japan; ²Hyogo University of Health Science, Hyogo, Japan; ³NTT West Osaka Hospital, Osaka, Japan; ⁴Graduate School of Pharmaceutical Science, Osaka University, Osaka, Japan

Aim: We investigated the association between paraoxonase 1 (PON1)-192 genotypes and IMT values of carotid arteries that correlate with the progression of systemic atherosclerosis in diabetic Japanese patients.

Methods: One hundred and fifty-five Japanese type 2 diabetic patients aged from 40 to 79 years without major cardiovascular events and severe nephropathy were enrolled in this study. Genotypes of the patients were determined by the PCR-RFLP method. IMT of carotid arteries of the subjects was recorded by B-mode ultrasound imaging.

Results: The genotypes QQ, QR and RR were found in 18(0.116), 70(0.452) and 67(0.432) patients respectively. IMT values of the RR group were significantly greater (1.08 ± 0.41 mm, $n = 67$) than those of the Q group, consisting of patients carrying one or two Q alleles (0.95 ± 0.27 mm, $n = 88$, $P = 0.023$). There was no significant difference in clinical characteristics between the two groups.

Conclusion: The results of this study indicate that PON1-192RR genotype is associated with development of atherosclerosis.

O15 Diabetes complications and BMI in Asia, Africa, Europe, and Latin America: A1chieve baseline data

WY YANG¹, G GONZALEZ-GALVEZ², P HOME³, IM HAJAJI⁴, PN CHAKKARWAR⁵, P SOEWONDO⁶
¹China-Japan Friendship Hospital, Beijing, China; ²Instituto Jalisciense de Investigacion en Diabetes y Obesidad, Jalisco, Mexico; ³ICM-Diabetes, The Medical School, Newcastle Upon Tyne, UK; ⁴National Centre for Diabetes & Endocrinology; ⁵Novo Nordisk International Operations A/S, Zürich, Switzerland; ⁶Faculty of Medicine, University of Indonesia, Jakarta, Indonesia

A1chieve is a multinational, open-label, observational study evaluating the safety and effectiveness of insulin analogues in people with type 2 diabetes ($n = 66,726$) in routine clinical practice. The prevalence of complications at baseline, categorised by BMI according to WHO Asia criteria (<20.0 ; $20.0 \leq 23.0$; $23.0 \leq 25.0$; $25.0 \leq 27.5$; $27.5 \leq 30.0$; ≥ 30.0 kg/m²), was estimated using a multivariate logistic regression model, and presented as mean value of predicted probability (%). Overall, the probability of experiencing any complication was lowest in the BMI group <20.0 kg/m², 59.7% and greatest in the BMI group ≥ 30.0 kg/m², 75.2%. The trend of increasing probability of microvascular or macrovascular complications with increasing BMI was seen across almost all regions. However, BMI appeared to have little impact on predicting microvascular complications in China (<20.0 vs. ≥ 30.0 kg/m²: 55.5 vs. 58.2%), while a decreased probability with higher BMI was found in Latin America where BMI <20.0 kg/m² had a possibly higher probability of complications (79.0 vs. 64.5% for BMI ≥ 30.0 kg/m²). Russia had the highest probability of reporting microvascular or macrovascular complications compared with other regions, with 92.2 and 76.4% likelihood respectively in people with BMI ≥ 30.0 kg/m². The lowest probability of microvascular complications was in south Asia with a 51.3% likelihood with BMI <20.0 kg/m², and of macrovascular complications in Latin America with a 14.1% likelihood with BMI <20.0 kg/m². In general, increasing BMI was associated with higher probability of having microvascular/ macrovascular complications, although with regional variations.

Poster Presentations

P1

Metabolic syndrome, the difference between criterion in male subjects

FMS ADAM, JMF ADAM

Diabetes and Lipid Centre Wahidin Sudirohusodo Hospital, Division of Endocrinology, Department of Internal Medicine, Hasanuddin University, Makassar, Indonesia

Background: There is no universal criterion for the diagnosis of metabolic syndrome. In 2001 the NCEP ATP III introduced the clinical diagnosis of this syndrome. In 2005, the IDF introduced a new criterion that modifies NCEPATP III. Another criterion was introduced by AHA/NHLBI in 2010, basically the same as NCEP ATP III, except for lower fasting blood sugar. Aim of this study is to compare the prevalence of metabolic syndrome among males using two different criterion, IDF and AHA/NHLBI.

Subjects and methods: Subjects were from the East Indonesia Diabetes Epidemiology Group. In this study we focused only to male subjects. We excluded those who were known as diabetes mellitus, on treatment for hypertension, and dyslipidemia. After 12 h fasting, blood were collected for fasting blood sugar, triglycerides, and HDL-cholesterol. In this study we used the Asia-Pacific criterion for waist circumference.

Results: During two years period 1439 males fulfill the criterion for screening. Compared to IDF criterion, more subjects with metabolic syndrome were diagnosed by AHA/NHLBI i.e 23.0% by IDF and 33.2% with AHA/NHLBI. The overlap between these two criterion was 9.6%, whereas 13.4% have metabolic syndrome by IDF but not AHA/NHLBI and 23.6% by the AHA/NHLBI but not the IDF criterion.

Conclusion: In this study, using the AHA/NHLBI detected more male metabolic syndrome compared to IDF criterion.

P2

Impact of anti-diabetic medication on the cardiovascular and renal outcome in patients with diabetes mellitus

J AL WAKEEL¹, D HAMMAD¹, A MITWALLI¹, A AL HABI², M AL GHONAIM¹, A AL SUWAIDA¹

¹King Saud University, Riyadh, Saudi Arabia; ²Security Forces Hospital University, Riyadh, Saudi Arabia

Background: Concerns have been raised that anti-diabetic agents may themselves increase the risk of cardiovascular and renal events in type 2 diabetic patients.

Objective: To investigate impact of anti-diabetic treatment by oral hypoglycemic (OH) agents alone and combined treatment with insulin and OH agents where Insulin was added after OH agents alone failed to control hyperglycemia on cardiovascular and renal outcome in type 2 diabetic patients.

Method: Retrospective study performed on 1952 diabetic patients in Security Forces Hospital, facilitated by King Saud University, Riyadh, Saudi Arabia from January 1989 to December 2004. Data included patients demographics, co-morbidities, clinical and laboratory data, cardiovascular, renal outcome and mortality.

Results: Total 1952 diabetic patients, 1073 on OH agents, 775 on combine therapy of OH agents and insulin. Comparing baseline characteristics of OH group vs. insulin and OH together. Age was 58.3 ± 14 vs. 59.6 ± 13.7 years, male sex 60.4% vs. 43.4% ($P = 0.00$). Duration of diabetes was 8.7 ± 6.7 vs. 12.9 ± 7.6 years ($P = 0.00$), initial FBS was 9.6 ± 2.4 mmol/L vs. 9.7 ± 2.4 mmol/L. Initial serum creatinine was 72 ± 35 vs. 74 ± 35 mmol/L. SBP was 132.3 ± 19 vs. 131.9 ± 19 mmHg while DBP was 78.2 ± 10 vs. 77.9 ± 10 mmHg. At last visit SBP was 128.4 ± 20 vs. 129 ± 21 mmHg $P = 0.29$, DBP was 78 ± 8 vs. 76 ± 9 mmHg, doubling serum creatinine was 8.1% vs. 19.1% patients ($P = 0.00$), uncontrolled hypertension was found in 18% vs. 21.2% patients ($P = 0.08$). GFR <60 mL/min at last visit was 22.3% vs. 33.9% patients. DN was 19.3% vs. 35.2% patients. Increased need of dialysis was 2.2% vs. 6.3% patients ($P = 0.00$), greater incidence of MI 11.6% vs. 18.6% ($P = 0.00$), stroke 7.8% vs. 14.3% ($P = 0.00$), foot infections 2.3% vs. 7.2% ($P = 0.00$) and mortality 7.5% vs. 9.5% ($P = 0.13$) was observed in OH plus insulin treated group.

Conclusion: Addition of insulin late when OH agents failed to control hyperglycemia has no benefit, rather risk of adverse renal and cardiovascular events and mortality increases in diabetic patients.

P3

Studying level of knowledge about of diabetes and its relationship with demographic in nurses to hygienic and medical centers in Sanandaj city, IN 2007

N ALIRAMAEI, N SHARIFI, M SABERY, L MORADI
Kurdistan University of Medical Science, Sanandaj, Iran

Introduction: Diabetes is the third leading cause of death from disease. In 2000, according to the World Health Organization, at least 171 million people worldwide suffer from diabetes, or 2.8% of the population. Diabetes mellitus occurs throughout the world, but is more common in the more developed countries. The greatest increase in prevalence is, however, expected to occur in Asia and Africa, where most patients will probably be found by 2030. Nurses who care for patients with diabetes must help them develop self-care management skills.

Method: This was a descriptive and analytical study. The research samples based on aim contain 180 persons. Data collection tools include questionnaire containing 10 questions relating personal information and 18 questions relating the rates of knowledge and using chi-square.

Results: The findings showed that most test subjects were female (77.2%) and (55.6%) between 31–40 years old. More than (78.3%) married, and more than (71.7%) nurse for over 10 years (51.1%), and also (37.8%) working in evening and night shift and suffering from knowledge it (23/2%) well (56/4%) average and (40/4%) weak. Also finding, showed that the rate of knowledge was good (8.3%), medium (70%) and weak (21.7%).

Conclusion: Diabetes is a self-managed disease that requires many strategies to keep it under control and a system of care to monitor the prevention and provide early treatment of complications. Patients are often more comfortable with nurses, and nurses spend more time with patients and have the expertise to teach them to manage their diabetes properly. The provision of care in nurse-directed clinics may contribute to keeping patients with diabetes healthy and free of complications.

P4 Body mass index associated with the number of pregnancies in women referred to health centers of Sanandaj

N ALIRAMAEI¹, K ZOBEIRY²

¹Kurdistan University of Medical Science, Sanandaj, Iran;

²Tehran University of Medical Science, Tehran, Iran

Introduction: Obesity is created for any reason, Should be treated as a chronic disease. Based on results of research conducted, the most appropriate body mass index is below 25. Pregnant women are considered among the most vulnerable groups of any population and are required to receive health services appropriate and timely. Pregnant women are suffering from a variety of problems during the ninth month of pregnancy. Most discomfort is caused by physical and physiological changes of pregnancy.

Methods: This is a descriptive – analytical method and Researcher chose the research environment by cluster sampling method. Information was gathered through a questionnaire, Regular interview and measuring the weight and height of 300 women referred to health centers in sanandaj.

Results: Results based on the body mass index showed 47 percent overweight and 24 percent obesity and Severe obesity and only 7/1% low-weight. There was also significant correlation between BMI with age and parity. The majority of women age with 26/7% was between 25–20 years and the majority were married (%90/3). Their job, housewife (80%). Majority with 39/7% had primary education up to sixth grade. 66/3% did not mention a specific disease. Results also showed with 69/7% number of pregnancies was 1–2 times.

Discussion: Today, with the emphasis on population control and birth limitation, gradually the role of women have been less important in the family collection of children, increasing family size. According to these results, 47% of women were overweight, and 24% were obese and severely obese. Increasing weight and obesity greatly increases the economic costs of health care. Due to poor awareness of pregnant women seems necessary development and execution of educational programs and prenatal care. Education and increasing women's education level has significant role in the health state of mothers and children.

P5 Stroke and high blood pressure

N ALIRAMAEI¹, K ZOBEIRY²

¹Kurdistan University of Medical Science, Sanandaj, Iran;

²Tehran University of Medical Science, Tehran, Iran

Introduction: High blood pressure is the most significant known risk factor for stroke. Hypertension is often called 'the silent killer' because most people don't even realize they have it. High blood pressure is when your blood pressure is consistently over 140/90. A person with untreated hypertension is four times more likely to have a stroke than someone whose blood pressure falls within the healthy range.

Methods: This study is done by a cross-sectional descriptive method. All the 100 patients with CVA who were present in the place of research were selected on an easy and objective- based method. The information was completed through questionnaire and interview, and then scored and statistically analyzed.

Results: Results showed that the samples (53%) females aged 70–51 years with majority of 48% and 38% housewives, the majority of illiterate, and 55% with previous history of stroke did not attack. Total days of hospitalization varied between 5 and 9 days with 43% of rural residence, and admission with 42% suffering from paralysis

of four limbs that 79% had no obvious impairment of speech and they mostly had high blood pressure for 4–7 years. Also between high blood pressure and stroke with $P < 0.005$ a significant relationship was shown.

Discussion: A stroke is a medical emergency and can cause permanent neurological damage, complications, and death. It is the leading cause of adult disability in the United States and Europe and it is the number two cause of death worldwide. Risk factors for stroke include advanced age, hypertension, previous stroke or transient ischemic attack (TIA), diabetes, high cholesterol, cigarette smoking and arterial fibrillation. High blood pressure is the most important modifiable risk factor of stroke. Arterial hypertension is the most important hygienic problem in developed countries, which if not cured will lead to fatal complications.

P6 Evaluating the relationships of circulatory measures with estimation of cardiovascular endurance using a non-exercise model in young asymptomatic males and females

MA ALOMARI¹, DM SHQAIR², K ALAWNEH³, OF KHABOUR⁴, ME NAZZAL⁵, EF KEEWAN⁶

¹Division of Physical Therapy, Department of Allied Medical Sciences, Jordan University of Science and Technology, Irbid, Jordan; ²Department of Nutrition, Jordan University of Science and Technology, Irbid, Jordan; ³Division of Rheumatology, Department of Medicine, King Abdulla Hospital; ⁴Department of Medical Laboratory Sciences, Jordan University of Science and Technology, Irbid, Jordan; ⁵Department of Rehabilitation Medicine, Faculty of Medicine, Jordan University of Science and Technology; ⁶Department of Physiology, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

Introduction: The diagnostic value of graded exercise testing for cardiovascular (CV) diseases (CVD) screening in asymptomatic individuals was recognized sometime ago. However, the risk, time constrains, inconvenience, and cost associated with exercise testing prevent from using the maximal oxygen consumption (VO_{2max}) measure frequently. A recent model is proposed to estimate VO_{2max} without exercise. This study, examined the relationships of the non-exercise model (NM) with circulatory measures of blood pressure (BP) including diastolic (DBP), and mean (MAP), as well as forearm resting blood flow (RbF), and vascular resistance (RVr), and post-occlusion blood flow (OcBf) in 188 young (18–40 years) asymptomatic males (M) and females (F).

Methods: The equation used to estimate VO_{2max} was: [Gender (female = 0; male = 1) * 2.77] - [Age * 0.10] - [BMI * 0.17] - [resting heart rate (HR) * 0.03] + [PAlevel * 1] + 18.07. Automated auscultatory was used to measure BP and HR whereas strain-gauge plethysmography was used to measure RbF, RVr, and OcBf after 20 min of supine resting.

Results: Estimated VO_{2max} correlated with DBP (F: $r = -0.3$; $P = 0.005$, M: $r = -0.2$; $P = 0.03$), and MAP (F: $r = -0.2$; $P = 0.005$, M: $r = -0.2$; $P = 0.04$) as well as RbF ($r = 0.2$; $P = 0.02$), OcBf ($r = 0.3$; $P = 0.02$) and RVr ($r = -0.2$; $P = 0.03$). Additionally, the ANOVA revealed differences in OcBf ($P = 0.000$), and RVr ($P = 0.05$) between the poor, average, and high $NMVO_{2max}$ groups.

Discussion: The results show relationships of $NMVO_{2max}$ with circulatory measures confirming previous findings using direct VO_{2max} . The relationships further demonstrate the importance of CV endurance for maintaining circulatory health. Since BP measures are established risk factors and components of the metabolic syndrome, these relationships further add to the scientific and clinical values of NM.

P7 Obesity relationship with non-exercise estimation of cardiovascular endurance in young asymptomatic males and females

MA ALOMARI¹, DM SHQAIR², K ALAWNEH³, OF KHABOUR⁴, ME NAZZAL⁵, EF KEEWAN⁶

¹Division of Physical Therapy, Department of Allied Medical Sciences, Jordan University of Science and Technology, Irbid, Jordan; ²Department of Nutrition, Jordan University of Science and Technology, Irbid, Jordan; ³Division of Rheumatology, Department of Medicine, King Abdulla Hospital; ⁴Department of Medical Laboratory Sciences, Jordan University of Science and Technology, Irbid, Jordan; ⁵Department of Rehabilitation Medicine, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan; ⁶Department of Physiology, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

Obesity is a major risk factor for cardiovascular (CV) diseases (CVD), a component of the metabolic syndrome, and a leading cause of death in the world. The direct measure of CV endurance (CVE) has been recommended to be used in the screening for CVD in asymptomatic individuals. The non-exercise model (NM) to estimate CVE (NMCVE) has been proposed as an alternative for the direct measure. However no studies have examined the relationship of obesity with NMCVE. Therefore, the study examined the relationships of obesity measures with NMCVE. Weight (wgt), percent body fat(%BF), waist(WC), and hip(HC) circumferences, WC and HC ratio(WHR), and body mass index(BMI) were used as measures of obesity. The equation used to estimate CVE was: $VO_{2max} = [Gender (female = 0; male = 1) * 2.77] - [Age * 0.10] - [BMI * 0.17] - [resting HR * 0.03] + [PA level * 1] + 18.07$. Subsequently, the relationships between obesity measures and NMCVE were examined in 188 asymptomatic males and females. The participants' NMCVE correlated significantly ($P > 0.05$) with wgt, %BF, muscle mass, body water content, WC, HC, WHR in the males ($r = 0.2-0.7$) and females ($r = 0.2-0.7$). Additionally, the ANOVA ($P > 0.05$) revealed significant difference in wgt, BMI, %BF, muscle mass, body water content, WC, and HC between the NMCVE low, moderate, and high groups. This is the first study to report relationships between NMCVE and obesity measures. These results confirm the relationship between obesity and CVE using the direct measures, suggesting the importance of maintaining aerobic endurance for weight control. Additionally, since obesity measures are established risk factors and components of metabolic syndrome these relationships further enhance the value of the non-exercise model thus can be used in scientific and clinical settings.

P8 Cardiovascular disease (CVD) risk factor and high costs of CVD in Mexican Americans with diabetes mellitus

J APONTE¹

¹Hunter College, New York, USA

Context: One of the primary macrovascular complications in people with diabetes mellitus (DM) is cardiovascular disease (CVD). CVD is the most costly complication of DM. Costs of DM and macrovascular complications are 2.7 times higher than costs of DM without complications.

Objectives: Low-density-lipoprotein (LDL) is an independent risk factor of CVD and the primary macrovascular complication of DM. The National Health and Nutrition Examination Survey (NHANES)

1999–2000 and NHANES 2001–2002 were utilized to examine and compare LDL levels in Mexican Americans (MA) with DM.

Methods: The NHANES 1999–2000 and NHANES 2001–2002 data sets were utilized in this study. Descriptive statistics and Chi-squares were computed. The sample comprised participants who self identified as MA, being told by a doctor as having DM, and between 20–74 years of age. LDL was the variable measured in this study.

Results: The findings showed that even though changes in both, normal LDL levels (<100 mg/dL) and elevated LDL levels (>100 mg/dL) were not significant ($P = 0.8129-0.9132$), there was a slight decrease in people with elevated LDL levels (>100 mg/dL) from the NHANES 1999–2000 (74%) to the NHANES 2001–2002 (66%) ($P = 0.8129$). Although there was an 8% decrease in elevated LDL levels (>100 mg/dL), over 50% of those with an elevated LDL level were at high risk for CVD.

Conclusion/Implications: This study shows that MA with DM are at high risk for CVD. Therefore, future research should include studies identifying specific cultural factors relative to the management of DM and risk factors for CVD.

P9 Development of food insulin index (FII)

J BAO¹, F ATKINSON¹, P PETOCZ², W WILLETT³, J BRAND-MILLER¹

¹Boden Institute of Obesity, Nutrition & Exercise, the University of Sydney, Sydney, Australia; ²Department of Statistics, Macquarie University, Sydney, Australia; ³Harvard School of Public Health, Harvard University, USA

Objectives: A greater understanding of dietary insulin demand is important in the management of diabetes. Carbohydrate counting and glycemic index leave out a majority of non-carbohydrate foods in terms of predicting insulin responses. We developed a food-insulin-index (FII) for ranking iso-energetic foods (1000 kJ) according to insulin demand and systematically gathered available data.

Methods: Published and unpublished data were collected between 1997 and 2008. To date, there are 120 data entries, for nine categories of foods, all tested in 10 healthy subjects. Correlations between FII values and nutrients were examined.

Results: Significant differences in FII values were noted within and between food categories. Within food groups, insulin demand varied over a two-fold range among the vegetable group and over a 20-fold range among the fruit group. Carbohydrate, protein and fat, but not fibre, were related to insulin responses ($r = 0.68, -0.26$ and $-0.51, P < 0.01$).

Conclusion: The FII database may be helpful in exploring relationships between insulin demand and diabetes and related complications.

P10 Effect of two diets of varying food insulin index (FII) on day-long (8-hour) profile of insulin secretion

J BAO¹, F ATKINSON¹, P PETOCZ², J BRAND-MILLER¹

¹Boden Institute of Obesity, Nutrition & Exercise, the University of Sydney, Sydney, Australia; ²Department of Statistics, Macquarie University, Sydney, Australia

Objective: Prolonged or high degrees of postprandial insulinemia are linked to epidemics of diabetes, obesity and other metabolic abnorm-

alities. This study aimed to investigate the insulinemic effects of two diets with similar macronutrients, fibre and GIs but disparate food insulin index (FII) over the course of a whole day.

Methods: 10 lean, healthy subjects consumed a high and a low FII diet in a randomised, crossover design, consisting of three meals in two separate days. Two diets were matched for macronutrients, fiber and GIs but had different insulin demand assessed by FII (65 vs. 30). Capillary blood was sampled every 30 min from 08:30 until 16:30 and assayed for glucose and insulin.

Results: The insulin mean incremental areas under the curve (AUC) during the day the low FII diet was ingested was more than 50% lower than on the day of high FII diet (low FII diet: 32 ± 4 nmol/L*min vs. high FII diet: 68 ± 11 nmol/L*min, $P = 0.003$) whereas there was no significant difference in glucose response (AUC) (low FII diet: 330 ± 88 vs. high FII diet: 387 ± 70 mmol/L*min, $P = 0.73$). Mean fasting insulin and glucose concentrations didn't differ significantly on both days ($P = 0.069$ and 0.066 , respectively).

Conclusions: This study provides the first clinical evidence of the physiological validity of the concept of food insulin index as a measure of day-long glucose and insulin profiles in a whole-diet context in lean, young healthy subjects.

P11 Normal insulin demand for dose adjustment: the Nidda study

J BAO¹, H GILBERTSON³, R GRAY², D MUNNS², G HOWARD², S COLAGIURI¹, J BRAND-MILLER¹
¹*Boden Institute of Obesity, Nutrition & Exercise, the University of Sydney, Sydney, Australia;* ²*Sydney Insulin Pump Clinic, Sydney, Australia;* ³*Centre for Adolescent Health, Royal Children's Hospital, Melbourne, Australia*

Objective: Carbohydrate counting assumes only the quantity of carbohydrate influences insulin dose required in type 1 diabetes. A food insulin index (FII) has been developed and validated for predicting normal insulin demand generated by mixed meals in healthy adults. We sought to compare a novel algorithm based on the FII for estimating mealtime insulin dose with carbohydrate counting in adults with type 1 diabetes.

Research Design and Methods: Twenty eight participants consumed two different breakfast meals of equal energy, glycemic index, fibre and predicted insulin demand (FII = ~60 for both meals) but ~2-fold difference in carbohydrate content, in random order on 3 consecutive mornings. Meal A was consumed using carbohydrate counting only. Meal B was consumed on two occasions, once using carbohydrate counting as the basis for the insulin dose (ie half dose as Meal A) and once using the novel algorithm (same dose as Meal A). Real-time continuous glucose monitor was used to assess postprandial glycemia.

Results: Compared with carbohydrate counting, the novel algorithm significantly decreased glucose incremental area under the curve over 3 h (-52%, $P < 0.01$), peak glucose excursion (-41%, $P = 0.001$) and improved the percentage of time within the normal BGL range (4–10 mmol/L) (+31%, $P < 0.001$). There was no significant difference in the occurrence of hypoglycemia.

Conclusions: The findings support the use of a novel algorithm based on insulin demand in healthy subjects to optimize glycemic control without increasing the risk of hypoglycemia in type 1 diabetes patients using insulin pump therapy.

P12 A prevalence study of depression and anxiety among adults with type 2 diabetes mellitus

SN BASAK^{1,3}, S RAI^{2,3}
¹*MGM Medical College, Navi Mumbai, India;* ²*Department of Medicine, MGM Medical College, Navi Mumbai, India;* ³*Indian Council of Medical Research, Ansarinagar, New Delhi, India*

Background: The WHO has projected that 300 million people will suffer from diabetes by 2025. 'India' is the number one contributor to this. A history of major depression was found in 33% of the patients; despite that, it is frequently unrecognized and untreated. Depression is associated with hyperglycemia and may affect the glycemic control and increase the risk of diabetic complications. This research was done to get an accurate idea of severity in depression and anxiety in adults with DM which will help us cope with the consequences.

Methods: A sample size of 100 adults with Type 2 diabetes was considered after a certain inclusion and exclusion criteria. An OPD based cross-sectional study was done during 2010. Data regarding demographics, anthropometrics, biochemistry, micro and macrovascular complications of diabetes were considered. Following which they were given to fill the Beck Depression Inventory -2 and Clinical Anxiety Scale which was used to assess depression and anxiety respectively.

Results: More prevalent in men in a mean age group of ≥ 56 years (OR = 1.09, 95% CI = 0.6–1.9), with obesity (OR = 1.6, 95% CI = 0.9–2.8), mean duration of 5–10 years. 69% of the patients had a family history of diabetes, 15% were hypertensive. Based on BDI- II, 38%, 44% were severely, moderately depressed respectively. Also, 65% of the diabetic population is suffering from moderate anxiety, both of which are associated with agitation, irritability, tiredness and changes in appetite.

Conclusion: Depression and Anxiety in adults with type 2 diabetes is largely prevalent esp, in males and in older age group with a long span of diabetes. Diabetes and depression can thus pretty much lead to development of the other. Hence, it is very essential to monitor our lifestyles now than regret later.

P13 Obesity and gastroparesis in type 2 diabetic patients with neuropathy

M BOAZ^{1,2}, J KISLOV³, J WAINSTEIN³
¹*Epidemiology and Research Unit, E. Wolfson Medical Center, Holon, Israel;* ²*Nutrition Department, School of Health Sciences, Ariel University Center, Ariel, Israel;* ³*Diabetes Unit, E. Wolfson Medical Center, Holon, Israel*

Background: Associated with neuropathy, symptoms of gastroparesis are common in patients with type 2 diabetes mellitus (T2DM) and include nausea, vomiting, bloating, and early satiety associated with delayed gastric emptying. Gastric motor abnormalities have been reported in obese patients, and obesity is associated with T2DM. An association between obesity and gastroparesis symptoms in diabetic patients with neuropathy has not been investigated.

Methods: In a cross-sectional survey of gastroparesis prevalence in 380 T2DM patients, 161 were identified as having neuropathy. Gastroparesis symptom prevalence was compared by obesity (BMI ≥ 30 kg/m²). A general linear model of number of symptoms was developed.

Results: Subjects were 66.6 ± 10 years of age, 51% female, diabetes duration 15.6 ± 8.2 years, fasting blood glucose 159 ± 69 mg/dL, HbA1c $8 \pm 1.6\%$ and 56.5% obese. Obese subjects reported significantly more early satiety (61.5% vs. 35.2%, $P = 0.001$); fullness

(63.7% vs. 40.8%, $P = 0.004$); bloating 70.3% vs. 49.3%, $P = 0.006$ and abdominal distention (71.4 vs. 50.7%, $P = 0.007$) than non-obese subjects. Obese subjects were more likely to have any gastroparesis symptom (RR 2.4, 95% CI 1.01-5.9, $P = 0.04$); moreover, obese subjects reported more gastroparesis symptoms: 4 (0-10) vs. 3 (0-8), $P = 0.005$. In the model of number of gastroparesis symptoms, obesity persisted as a significant, independent predictor even after controlling for age, sex and HbA1c ($P = 0.03$).

Conclusions: Obesity emerged as a significant, independent predictor of gastroparesis symptoms in patients with T2DM and neuropathy. This finding suggests that mechanisms in addition to neuropathy - perhaps hormones such as ghrelin - play a role in the pathogenesis of gastroparesis in this patient population.

P14 **Jewish new year associated with decreased point of care glucose in hospitalized patient population**

M BOAZ^{1,2}, Z LANDAU³, Z MATAS⁴, T CHAIMY⁴, J WAINSTEIN³

¹Epidemiology and Research Unit, E. Wolfson Medical Center, Holon, Israel; ²Nutrition Department, School of Health Sciences, Ariel University Center, Ariel, Israel; ³Diabetes Unit, E. Wolfson Medical Center, Holon, Israel; ⁴Biochemistry Laboratory, E. Wolfson Medical Center, Holon, Israel

Background: In individuals with diabetes, glycemic control has been shown to be disrupted during the winter holiday period.

Methods: Blood glucose values from individuals hospitalized in internal medicine units were collected and analyzed during the period surrounding Rosh Hashanah, the Jewish New Year, 2010. Values obtained between 4-7 September 2010, were categorized as pre-holiday values; values from 8-11 September 2010 were classed as holiday values; and values from 12-15 September 2010 were labeled post-holiday values. All values were collected at point of care (POC) using an automated, institutional glucometer located in each department, the data from which is downloaded to a central hospital-wide database.

Results: A total of 3403 POC glucose values were recorded during the observation period. POC glucose values were significantly lower during the Rosh Hashanah holiday than the pre- or post-holiday periods: 176.8 ± 81.3 vs. 181.4 ± 78.8 or 184.9 ± 83.02 , $P = 0.03$. During the Rosh Hashanah holiday, mean patient age was significantly older than the pre- or post-holiday period: 77.4 ± 10.9 vs. 74.9 ± 12.0 or 75.3 ± 11.8 , $P < 0.0001$; however, age predicted less than 1% of the variability in POC glucose: $r = 0.02$, $P = 0.23$. In a linear regression model, holiday period remained a significant independent predictor of POC glucose even after controlling for age and sex.

Conclusions: POC glucose was significantly lower during the Rosh Hashanah period relative to pre- and post-holiday values. This may reflect a shift in the composition of the hospitalized patient population during the holidays towards older individuals with more restricted dietary intake.

P15 **Insulinemia and blood pressure in obesity**

M BOZ, E ULGEN, C MUDERRISOGLU, F AKTAS, E ALTUNOGLU, F ERDENEN, M ERGUNY

Istanbul Training and Research Hospital, Clinics of Internal Medicine

Introduction and objectives: The relation between body weight and arterial blood pressure is reported since many years in obese popula-

tion. However, a causal link between insulin resistance and Type 2 diabetes or hypertriglyceridemia and metabolic syndrome is not well demonstrated. The aim of this study is to examine the relationships between insulin levels and arterial blood pressures, glycemia, triglyceridemia and some others parameters linked to metabolic syndrome in obese population.

Methods: 195 obese patients were pooled out followed in our outpatient clinics. We accepted only between 40-60 years old and non-diabetic patients. Some characteristics of this population: age (years): 48.6 ± 5.2 , Waist circumference (cm): 112.2 ± 15.1 , WHR (Waist Hip Ratio): 0.87 ± 0.7 , SBP (Systolic Blood Pressure: mmHg): 132.3 ± 18.7 , DBP (Diastolic Blood Pressure mmHg): 80.7 ± 10 , FBG (Fasting Blood Glucose mg/dl): 103.5 ± 27.7 , triglyceridemia (mg/dL): 156.8 ± 78.5 and BMI (Body Mass Index: Weight (kg)/Height (m²): 38.9 ± 7.6 .

Results: When we divided the study group into two groups according to insulin levels (10 mU/L) < or >: increased BMI, waist circumference but not WHR and C-peptide, FBG, triglyceridemia significantly ($P < 0.0001$) are in the high insulin level group. Elevated SBP ($P < 0.03$) but not DBP, decreased HDL ($P < 0.07$) and HbA1c ($P < 0.01$) also in the same group. Inversely when we divided into two groups according to SBP levels (120 mg < or >): increased BMI, DBP ($P < 0.0001$), waist circumference ($P < 0.001$) but not WHR, and increased FBG ($P < 0.01$), triglyceridemia ($P < 0.01$), insulinemia ($P < 0.007$) and C-peptide ($P < 0.003$) are in the elevated SBP group.

Conclusion: Hyperinsulinemia and elevated SBP are associated variables in obese patients. These parameters are the main components of metabolic syndrome.

P16 **Metabolic syndrome and hypothyroidism - additional risk factors in cardiovascular diseases**

EG CIRCO, MN BECIU, RE CIRCO

Ovidius University, Constanta, Romania

Introduction: Hypothyroidism correlate with metabolic syndrome is one of the major causes of risk in the development of degenerative cardiovascular pathology.

Methods: Patients were evaluate the characteristics of metabolic syndrome and dosage of the serum metabolic constant; assessment of the thyroid (serum hormone dosage level, thyroid antibodies, thyroid and cardiac ultrasonography). The data obtained were assessed in two differentiated study groups: group 1 - patients with cardio-vascular disease, metabolic syndrome and thyroid disease; group 2 - patients with cardio-vascular diseases and thyroid disease without metabolic syndrome.

Results: The incidence of metabolic syndrome in the study group was 45%. A percentage of 86% of patients with metabolic syndrome and endocrine diseases were associated with primary hypothyroidism. Females had a net prevail in group 1 (85%) and in group 2 (90%). The incidence of cardiovascular complications was maximum in group age 51-60 (54%). Cardiovascular complications were significantly as increased incidence ($P < 0.001$) among cardiac patients associating metabolic syndrome and hypothyroidism. Index calculation non-HDL - cholesterol revealed a higher risk among patients in group 2 (64%) associated with hypothyroidism, compared with those of batch 1 (47%). Hyperuricaemia was encountered more frequently among patients in group 2 (58%) compared to those in group 1 (42%). 86% of cases had primary hypothyroidism, sex ratio F:M = 8:1. Cardiovascular complications were significantly higher among patients with metabolic syndrome and hypothyroidism ($P < 0.001$); atherogenic index was 4.8 - group 1 and 5.6 - group 2.

Conclusions: Among patients with cardio-vascular diseases associated metabolic syndrome is frequent. Hypothyroidism represents an additional risk factor. It is necessary to determine serum thyroid hormones levels for the patients with coronary heart disease.

P17 Metabolic syndrome – possible marker for adrenal incidentaloma functionality

EG CIRCO, MN BECIU, RE CIRCO
Ovidius University, Constanta, Romania

Introduction: The adrenal incidentaloma is defined as a mass lesion found unexpectedly in an adrenal gland by an imaging procedure performed for another reason than suspected adrenal pathology.

Objective: To estimate the incidence of the adrenal mass and to define the algorithm for managing patients with incidental adrenal mass and metabolic syndrome

Methods: Were studied 41 patients (7 men and 34 women) with typical computed tomography features of adrenal mass. The structure of the adrenal incidentaloma group ($n = 34$) was: batch A-nonsecretory tumors ($n = 21$) (61.8%-TN) and batch B-secretor tumors ($n = 13$) (38.2%-TS) whereby 4 patients with one-sided pheochromocytoma, 5 with Cushing syndrome, 2 with subclinical Cushing syndrome and 2 with adrenal hypertrophy.

Results: Overweight or obesity were found in 33,3% by batch A and 30,8% by batch B; hypertension in 61,9% by batch A and 69,2% by batch B; diabetes mellitus in 19% by batch A and 30,8% by batch B; dislipidemia in 42,9% by batch A and 30,8% by batch B; osteoporosis in 14,3% by batch A and 23,1% by batch B.

Conclusions: The tumor assess, the magistic features and the quality of secretory/ nonsecretory tumor is essential. Some features of the metabolic syndrome described to the patients with adrenal incidentalomas are enlarged the medically problem and sometime may be considered the evidence for functional involvement of incidentaloma.

P18 The incidence of metabolic syndrome in a group of patients with impaired glucose tolerance

EG CIRCO, M SECELEANU, MN BECIU
Ovidius University, Constanta, Romania

Introduction: Altered carbohydrate metabolism is a component of metabolic syndrome symptoms.

Aim of the study: Determination of incidence and the cardiovascular risk of metabolic syndrome in patients with impaired glucose tolerance.

Material and method: Descriptive study, epidemiological and transverse including 362 adult patients with impaired glucose tolerance. Diagnostic criteria of metabolic syndrome were defined by the "International Diabetes Federation (IDF)," The 3rd Report of the National Cholesterol Education Program (NCEP-ATP III) and the World Health Organization (WHO).

Results: The incidence of metabolic syndrome was: 80.2% (IDF) and 72.6% (NCEP-ATP III) and 68.5% (WHO); among smokers was significantly higher ($P < 0.005$) 93% (IDF), 84% (NCEP-ATP III) and 81% (WHO) than non-smokers: 64% (IDF), 61% (NCEP -ATP III) and 57.4% (WHO). Percentage metabolic syndrome was more common in sedentary patients: 91.5% (IDF), 81.2% (NCEP-ATP III) and 80% (WHO) vs. those with constant physical activity 73.2% (IDF), 69.8% (NCEP-ATP III) and 71% (WHO) ($P < 0.001$); was more common ($P < 0.001$) in males compared with females: 61% / 39%

(IDF) 63% 37% (NCEP-ATP III) and 58% 42% (WHO); low significant ($P < 0.05$) for alcohol consumption.

Coronary heart disease and stroke were more frequent ($P < 0.001$) in patients with metabolic syndrome than those without symptomatic criteria of syndrome: 27%/2% (IDF), 38%/5% (NCEP-ATP III) and 25%/7% (WHO); moderate significance ($P < 0.05\%$) in men compared to women: 18% / 12% (IDF), 21% / 15% (NCEP-ATP III) and 17% / 11% (WHO).

Conclusions: Association of metabolic syndrome / impaired glucose tolerance is common. Prevention of cardiovascular complications for these patients involves early diagnosis of metabolic syndrome.

P19 Effects of diabetic ketoacidosis on vitamin D levels

R DANCIULESCU MIULESCU¹, J CRISTESCU¹, S DANOIU²

¹Institute Prof. N. Paulescu Bucharest, Romania; ²UMF Craiova, Romania

Background and Aims: Clinical and experimental evidence suggests that chronic metabolic acidosis alters vitamin D metabolism. The aim of the present study was to investigate the levels of vitamin D in patients with acute metabolic acidosis.

Materials and Methods: 17 patients with type 1 diabetes and moderate or severe metabolic acidosis (according American Diabetes Association statement, moderate acidosis: pH between 7.00–7.25 and bicarbonate between 10–15 mmol/L, severe acidosis: pH below 7.00, bicarbonate below 10 mmol/L) were recruited for this study. Plasma 25-hydroxyvitamin D was assessed with a radioimmunoassay kit.

These results were compared those of the control group consisting of 12 patients with type 1 diabetes, but without metabolic acidosis.

Results: The subjects of the study group: 8 women (47.05%) and 9 men (52.94%) were between 26 and 38 years old, with mean age 30.20 ± 3.22 years. 13 patients (76.47%) present moderate metabolic acidosis and 4 patients (23.52%) present severe ketoacidosis. The prevalence of vitamin D insufficiency in patients with moderate or severe metabolic acidosis was 41.17% (7 patients-3 women and 4 men). 2 patients with severe metabolic acidosis (11.76%- 2 men) present vitamin D deficiency. The prevalence of vitamin D insufficiency in patients with type 1 diabetes but without metabolic acidosis is 25% (3 patients -1 woman and 2 men).

Conclusion: There is considerable evidence supporting the role of vitamin D deficiency in the pathogenesis of type 1 diabetes mellitus. Acute metabolic acidosis may alter vitamin D metabolism.

P20 Improvement of early-phase insulin response and glucose tolerance by rhein in db/db mice

H DU¹, J SHAO¹, P GU¹, B LU¹, J WANG¹, Z LIU²

¹Department of Endocrinology, Nanjing General Hospital of Nanjing Military Command, Nanjing, China; ²Research Institute of Nephrology, Nanjing Jinling Hospital, Nanjing, China

Objective: Rhein (4,5-dihydroxyanthraquinone-2-carboxylic acid) is one of the most important active components of rhubarb (*Rheum officinale*), a traditional Chinese herb widely used to cure diseases associated with over-nutrition by Chinese emperors in ancient time. Recently, it has been found to be valuable in chronic inflamma-

tory diseases. In the present study, we aimed to investigate whether rhein have effects on insulin secretory function and glucose tolerance in diabetic db/db mice.

Methods: Thirty 4-week-old db/db mice were randomized to treatment with rhein (120 mg/Kg) and placebo (1% natrium cellulose solution) by gavage for 8 weeks respectively. Age-matched non-diabetic littermates db/m mice treated with placebo were studied as non-diabetic control. Body weight and blood glucose level were measured every week. After 8 weeks' treatment, IPGTT was done and immunohistochemical staining of insulin was performed to estimate beta-cell mass. AUC (area under curve) of insulin levels in IPGTT was calculated to evaluate insulin secretory function. Islet isolation and perfusion were performed to evaluate kinetics of insulin release in vitro, especially first-phase insulin.

Results: In rhein-treated group, the blood glucose concentrations at 0 min, 60 min and 120 min after glucose load were significantly reduced. Simultaneously measured insulin levels at 30 min and 60 min were significantly higher than those of control. Perfusion showed that rhein-treated group manifested a significantly increase of first-phase insulin secretion. Concurrently, rhein treatment greatly preserved beta cell mass and inhibited beta cell apoptosis.

Conclusions: Rhein treatment significantly improved glucose tolerance by preservation of beta cell mass and inhibition of beta cell apoptosis in db/db mice.

P21 Prevalence of obesity among adolescents (10–14 years) in Kuwait

IF EL BAYOUMY

Ports and Borders Health Division, MOH, Kuwait

The purpose of this cross-sectional study was to find out the prevalence of obesity and overweight among intermediate school adolescents aged 10–14 years. The study comprised a multistage stratified random sample that included 5402 children (2657 males and 2745 females). They represent 12.7% of the total number of children between 10 and 14 years during the educational year 2005–2006. The weights and heights of adolescents were measured, from which the body mass index (BMI) was calculated, which is the weight in kilograms divided by the height in meters squared (kg/m^2). BMI values higher than 95 percentile were accepted as being obese and those in between 85 and 94 percentile were accepted as overweight. Dietary intake was assessed by the investigators using food exchange lists designed by American Diabetic Association and physical fitness was measured by modified Harvard step test. Data regarding monthly income of the chosen sample were collected from parents of those children. The overall prevalence of overweight and obesity in adolescent Kuwaiti children aged 10–14 years was 30.7% and 14.6%, respectively. The overall prevalence of overweight and obesity among males was 29.3% and 14.9%, respectively ($P < .001$) and the prevalence of overweight and obesity among females was 32.1% and 14.2%, respectively ($P < .001$). High daily caloric intake by the obese and overweight children and physical inactivity was reported among the majority of them. Health education programs should be conducted to control this syndrome in order to prevent future risk of obesity-related disease, and physical activity programs should be incorporated in the schools. Any management plan for overweight and obese children should include 3 major components: diets, exercise, and family-based behavior and they should not be placed on restrictive diets because adequate calories are needed for proper growth.

P22 Effects of oral hypoglycemic drugs in combination with antioxidant (honey) on glycemic control and metabolic parameters in streptozotocin-induced diabetic rats

OO EREJUWA¹, SA SULAIMAN¹, MS AB WAHAB¹,
KNS SIRAJUDEEN², S MD SALLEH³, S GURTU⁴

¹Department of Pharmacology, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia; ²Department of Chemical Pathology, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia; ³Department of Pathology, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia; ⁴School of Medicine and Health Sciences, Monash University Sunway Campus, Jalan Lagoan Selatan, Selangor, Malaysia

Diabetes mellitus is characterized by worsening glycemic control and metabolic derangements. This study investigated the effects of addition of honey to hypoglycemic agents on glycemic control and metabolic parameters in streptozotocin (STZ)-induced diabetic rats. Diabetes was induced by STZ (60 mg/kg; ip). The diabetic rats were randomly divided into six groups and administered distilled water, honey, metformin, metformin and honey, glibenclamide or glibenclamide and honey. The rats were treated by gavage once daily for four weeks. Hypoinsulinemia (0.27 ± 0.01 ng/mL), hyperglycemia (22.4 ± 1.0 mmol/L) and increased fructosamine levels (360.0 ± 15.6 $\mu\text{mol}/\text{L}$) were observed in the serum of diabetic rats. Honey significantly increased insulin concentration, reduced hyperglycemia and fructosamine levels. Metformin or glibenclamide alone significantly reduced hyperglycemia (13.2 ± 2.9 or 13.9 ± 3.4 mmol/L, respectively) in diabetic rats. However, addition of honey to metformin or glibenclamide resulted in much lower levels of blood glucose (9.9 ± 3.3 or 8.8 ± 2.9 mmol/L, respectively). Similarly, honey combined with metformin or glibenclamide produced significantly lower fructosamine levels (285.8 ± 22.6 or 301.3 ± 19.5 $\mu\text{mol}/\text{L}$, respectively). In contrast, metformin or glibenclamide alone did not decrease fructosamine (314.6 ± 17.9 or 330.0 ± 29.9 $\mu\text{mol}/\text{L}$, respectively). Besides, these drugs or their combination with honey increased insulin. Metformin or glibenclamide combined with honey also significantly reduced the levels of creatinine, bilirubin, triglycerides and VLDL cholesterol. This study shows that addition of honey to hypoglycemic drugs further reduces serum glucose and fructosamine and offers beneficial metabolic effects, not achieved with either drug alone.

P23 Expressional regulation of the leptin and its receptor by N-3 PUFAs is not related to the dna methylation of their promoters in diet induced obese mice

C FAN, X LIU, W SHEN, K QI

Beijing Pediatric Research Institute, Beijing Children's Hospital, Capital Medical University

In this study, we investigated the effects of dietary n-3 PUFAs on methylation of CpG islands in the promoter regions of leptin, leptin receptor (leptin-R) and pro-opiomelanocortin (POMC) genes, as well as the effects of the n-3 PUFA status in early life on the DNA modification of the three genes' promoters. Male C57 BL/6J mice were fed with four high-fat diets with different fat types – sunflower oil (n-3 PUFA deficient), soy oil, fish oil, and mixture of soy and fish oil (soy: fish oil = 1:1), with two low-fat diets – sunflower oil and soy oil as

control. Female mice were fed with two breeding diets – sunflower oil and mixture of soy and fish oil (soy;fish oil = 1:1) during pregnancy and lactation to breed new pups. Compared to the mice fed with the control diets, the expressions of leptin in fats and leptin-R and POMC in hypothalamus were increased in the DIO mice, and n-3 PUFAs in the DIO diets reversed their increased expressions. The mean methylation level of CpG sites in the promoter regions of leptin and POMC genes showed no differences between the DIO and the control groups as well as between the n-3 PUFA containing and deficient diet groups. For the CpG sites in the promoter regions of leptin-R, no methylation was found both in all the DIO and the control groups. Still feeding the mice with the n-3 PUFA diet during maternal pregnancy and lactation did not affect CpG methylation in the leptin and POMC promoters. Our findings indicate that the promoter DNA methylation may not relate to the expressions of leptin, leptin-R and its related hypothalamic neuropeptides POMC.

P24 Maternal leptin level as predictor marker in gestational diabetes mellitus

AA FAWZY¹, AT TAWFIK¹, MS SWELEM¹, MM ELBERDENY²

¹OB/GYN Dep., School of Medicine, Alexandria, Egypt;

²Clinical Pathology Department, School of Medicine, Alexandria, Egypt

The objective of the study was to evaluate the role of Leptin as a predictor of gestational diabetes mellitus (GDM) and which precedes first: changes in leptin or abnormal glucose metabolism.

Methods: Forty pregnant ladies were selected, divided into 2 groups: G1 (study G): Twenty pregnant with GDM. G2 (Control G): Twenty normal pregnant. All were subjected to Ultrasound scan, body mass index (BMI), routine investigations, glucose challenge test (GCT), oral glucose tolerance (OGT) and measurement of serum leptin level at 16–20 and 24–28 gestational week.

Results: The leptin levels were significantly increased in G1 than G2 at different periods of gestation. The leptin levels changes happened earlier than the increase of insulin resistance. Pregnant ladies that developed GDM later had highest leptin level. Evident positive correlations were found between leptin level at 24–28 weeks and the levels of GCT OGT in G1, also, the same was observed with BMI at different periods of gestation in G1.

Conclusion: This preliminary study, confirmed that, the increased levels of leptin preceded the onset of abnormal glucose level in pregnant that developed GDM. This cytokine had a possible predictive value in GDM diagnosis. The subject is still open for further assessment, on larger number scale.

P25 Correlates of successful completion of the chronic disease self-management program by diabetics

SN FORJUOH¹, JN BOLIN², C HUBER³, JW HELDUSER², D BEGAYE¹, J SCHIMANK², MG ORY⁴
¹Texas A&M HSC College of Medicine, Department of Family & Community Medicine, Temple, Texas, USA; ²Texas A&M HSC School Of Rural Public Health, Department Of Health Policy & Management, College Station, Texas, USA; ³Texas A&M HSC School Of Rural Public Health, Department Of Epidemiology & Biostatistics, College Station, Texas, USA; ⁴Texas A&M HSC School Of Rural Public Health, Department Of Social & Behavioral Health, College Station, Texas, USA

Background: The Chronic Disease Self-Management Program (CDSMP) is a 6-session workshop designed to address the need for self-management education in persons with chronic disease, including T2DM.

Purpose: To identify factors that may be associated with successful completion of the CDSMP.

Methods: A survey of 113 patients with T2DM (HbA1c ≥ 7.5) in an HMO. Survey questions included demographics, health-related quality of life, physical activity measures, pain and fatigue, as well as diet, exercise, home blood glucose monitoring (HBGM), and foot care measures. Clinical data included height, weight, BMI and HbA1c. Successful completion was defined as attendance in at least 4 of 6 sessions.

Results: 71% of participants successfully completed the CDSMP. There were no significant differences between completers and non-completers with regard to age, race/ethnicity, gender, general health, and responses to questions on physical activity, nutrition, HBGM, and foot care. However, the average number of days/week that completers participated in self-care activities was greater than that for non-completers for almost every positive self-care task including HBGM (5.10 vs. 4.96), checking of feet (4.94 vs. 4.44), following a healthful eating plan (3.98 vs. 3.48), spacing carbohydrates (3.65 vs. 2.80), and participating in >30 min exercise (2.71 vs. 2.26), although not significantly different.

Conclusion: Completion of the CDSMP was not found to be associated with race/ethnicity or socioeconomic status/C factors that have been linked to health disparities. Successful completion of the CDSMP may therefore imply better adherence to diabetes self-care activities, although this outcome needs to be explored further.

P26 Diagnostic value of chemical biomarkers in the prediction of non alcoholic steato hepatitis (NASH) in diabetics' mellitus patients with non-alcoholic fatty liver disease

F GHARIBI¹, S HASANI², A SHARIFIAN³

¹Kurdistan University of Medical Science, Sanandaj, Iran;

²Medical University of Kurdistan; ³Kurdistan Digestive Research Center

Background: Liver biopsy is considered as the gold standard for assessing non-alcoholic fatty liver disease (NAFLD) histological lesions. The aim of this study was to determine the diagnostic utility of non-invasive biochemical markers for prediction non alcoholic steatohepatitis among diabetic mellitus type 2 patients with NAFLD.

Methods: 198 Diabetic mellitus type 2 patients were screened with abdominal sonography to evaluate prevalence of NAFLD among them .100 patients (51%) had NAFLD .finally? Thirty three patients diagnosed with liver statuses by ultrasonographic examination participated in the study. accordig there liver biopsies? they had two groups; simple statuses and NASH (Borderline and overt non alcoholic steatohepatitis). chemical biomarkers results of them compare with X2 and Fisher test.

Results: Twenty one patients (63.6%) had Non alcoholic steatohepatitis (NASH) consist of 9 patients with overt and 12 patients with Borderline NASH and Twelve OF them (36.4%) had simple steatosis.Average of AST in steatosis group was 23.6 and in NASH group was 26.85 that not significant Average of ALT in steatosis group was34.4 and in NASH group was 35.1 that not significant? Average of GGT and ALP in steatosis group and NASH was not significant. age ?BMI?Serum Cholestrol ?Serum triglyceride? total and direct Billirubin had not significant differences amog them.

Conclusion: In Diabetic mellitus type 2 patients with NAFLD? biochemical markers could not predicted non alcoholic steatohepatitis from simple steatosis.

P27 Does exercise self-efficacy mediate the gender-exercise maintenance relationship in coronary heart disease patients with and without diabetes?

SE GUO

Department of Nursing & the Chronic Diseases and Health Promotion Research Center, Chang Gung Institute of Technology, Taiwan

Background: The purpose of this study was to examine the determinants of exercise maintenance during the 6 month period after completion of a cardiac rehabilitation (CR) program in patients with and without diabetes.

Method: Subjects ($n = 110$) in this analysis were drawn from the larger clinical study of adults who had completed a CR program after myocardial infarction, coronary artery bypass graft surgery, and/or angioplasty. Exercise maintenance, the total number of hours spent exercising over the 6 month period, was collected using portable wristwatch heart rate monitors (during exercise), and activity diaries for 6 months. All data were collected and analyzed by hierarchical multiple regression.

Results: The major determinants of exercise maintenance were explained using factors from the Social Problem Solving Model when controlling for covariates (age, race, education, retirement, co-morbidity, and fitness). Hierarchical multiple regressions indicated exercise self-efficacy and gender predicted statistically lifestyle exercise. Twenty-two percent of the variance in exercise amount was explained [$F(9, 100) = 4.37, P < .001$] by race, gender, education, retirement status, diabetes status, fitness, pain, and self-efficacy. Exercise self-efficacy was a significant mediator of the relationship between gender and exercise maintenance. Diabetes, gender, and exercise benefits/barriers associated with exercise self-efficacy after control age, education, race, and pain.

Conclusions: Health care providers must be aware of the importance of self-efficacy and employ techniques to increase it, thereby enhancing exercise in CHD patients. Further research is needed to fully understand exercise maintenance and self-efficacy in CHD population with diabetes and among men and women.

P28 Efficacy of DPP-4 inhibitors and predictive factor for the treatment in patients with type 2 diabetes mellitus

JR HAHM, SM LEE, TS JUNG, JH JUNG, SI CHUNG

Department of Internal Medicine, Institute of Health Sciences, Gyeongsang National University School of Medicine, Jinju city, South Korea

Background: The object of study is to evaluate the efficacy of Dipeptidyl polypeptidase-IV inhibitors (DPP-4 inhibitors) to type 2 diabetes patients who were not well controlled with other oral hypoglycemic drugs or insulin, and to evaluate the predictive factors that influence on glucose lowering effect.

Methods: Retrospective study of the efficacy of DPP-4 inhibitors was done for whom diagnosed with type 2 diabetes patients, but not reached glycemic control target (glycated hemoglobin $>6.5\%$). I evaluated the changes of glycated hemoglobin, fasting plasma glucose, postprandial 1 h plasma glucose, and level of fasting plasma C-peptide. I investigated diabetic microvascular complications at the beginning of study.

Results: Total 156 patients were enrolled and followed up for 8.5 months. At the study end, patients receiving DPP-4 inhibitors had a mean decrease in glycated hemoglobin of 0.67%, and in fasting plasma glucose, and postprandial plasma glucose from baseline of 16 mg/dL, 32 mg/dL respectively ($P < 0.005$). Responders ($n = 107, 68.6\%$) had features of short duration of diabetes (7.7 ± 7.1 years versus 10.6 ± 6.8 years; $P = 0.015$), less microvascular complications, such as diabetic neuropathy (16.8% vs. 36.7%; $P = 0.006$) compared to non-responders ($n = 49, 31.4\%$).

Conclusion: A clinical meaningful improvement in glycemic control to type 2 diabetes patients who were previously treated with other oral hypoglycemic drugs or insulin was seen with concomitant DPP-4 inhibitors therapy. Patients who had short duration of type 2 diabetes and who had no combined microvascular complication were more easily achieved to glycemic target with concomitant use of DPP-4 inhibitors.

P29 Inhibitory potential of dietary fiber on key enzymes of carbohydrate-lipid digestion and absorption in pancreas of diabetes rats

K HAMDEN¹, A ELFEKI²

¹Biotechnology High School of Sfax (ISBS) Soukra, Tunisia;

²Animal Ecophysiology Laboratory, Faculty of Sciences of Sfax, Tunisia

Diabetes is a serious health problem and a source of risk for numerous severe complications such as obesity and cardiovascular diseases. Treatment of diabetes and its related diseases can be achieved by stimulating insulin secretion and/or activity and inhibiting key digestive enzymes of oligosaccharides and lipid secreted by intestine. Dietary fiber, was proven to possess interesting for the treatment of diabetes and its complications. The findings revealed that Dietary fiber as galactomanan considerable inhibited key enzymes-related to diabetes responsible of conversion of oligosaccharides into simple uptake sugars in pancreas such as alpha-amylase, maltase, lactase, sucrase. Interestingly, fiber administration to surviving diabetic rats inhibited considerable the key enzymes related to lipid digestion and absorption as lipase and colipase in pancreas, which leads to notable delay in the absorption of LDL-cholesterol and triglycerides and a remarkable increase in HDL-cholesterol. Overall, the findings of the current study indicate that galactomanan exhibit attractive properties and strong potential and can, therefore, be considered a promising candidate for future application as therapeutic agents in biotechnological and bioprocess-based technologies, particularly those interested in the development of anti-diabetic and hypolipidemic drugs.

P30 Comparative investigation of pioglitazone, metformin and the combination of both as add-on therapy in patients on high cardiovascular risk despite stable insulin treatment with insulin glargine

M HANEFELD¹, I KLEINE², A PFÜTZNER³, W FUCHS², T FORST³

¹GWT-TUD mbH - Centre for Clinical Trials; ²Takeda Pharma GmbH; ³IKFE Mainz

Patients with long term type 2 diabetes with stable insulin therapy still exhibit a high cardiovascular (CV) risk. We analyzed specific effects of add on therapy with pioglitazone in comparison with met-

formin and their combination in type 2 diabetes patients on high CV risk, despite acceptable HbA1c control with basal insulin glargine. In this double blind randomized active comparator controlled trial 121 patients with type 2 diabetes were included. Inclusions: stable insulin treatment, HbA1c >6.5% < 8.5%, age 30–75 years. Patients: 63.0 (± 7.5) years, BMI 32.2 (± 5.3), HbA1c 7.34 (± 0.53), insulin glargine dosage 36.2 (± 20.9) units. Comorbidities: hypertension 87.6%, CVD 19%. After a run in phase of >2 weeks with glargine monotherapy titrated to FBG <7.8 mmol/L patients were randomized to either (A) bid 850 mg metformin (B) bid 15 mg pioglitazone or (C) 30 mg pioglitazone plus 1.7 g metformin for a treatment of 6 months. Primary objective: MMP-9. These patients still exhibit an increased inflammatory activity, hsCRP of 3.21 mg/L, MMP9 of >550 ng/mL at baseline. Pioglitazone but not metformin significantly reduced MMP-9 and hsCRP and increased insulin sensitivity and adiponectin independent from glycemic control. All significantly reduced PAI-1. The triple combination of pioglitazone with metformin resulted in better HbA1c without added effect on inflammation and fibrinolysis. No serious adverse events were observed. Weight change was -0.7 kg vs. +4.3 kg vs. +2.7 kg and peripheral edema were observed in 11.9% vs. 40.0% vs. 20.5% in groups 1, 2 and 3. Pioglitazone is suggested to be a rational add-on therapy to basal insulin in patients with high cardiovascular risk because it closes a gap in prevention of CVD by correction of increased inflammatory activity and insulin resistance.

P31 The experience of bactericemia of type 2 diabetes mellitus in Northern Taiwan

JC HUANG¹, YS PENG¹, JH SUN², YY HUANG²

¹Chang Gung Memorial Hospital, Chiayi, Taiwan; ²Chang Gung Memorial Hospital, Taoyuan, Taiwan

Background: More incidences with higher mortality rate of sepsis made aggressive treatment in diabetes. We aimed to describe the recent experience in Northern Taiwan.

Methods and Materials: Using the Taiwan Chang Gung Memorial Hospital In-patient Diabetes Registry, hospitalized cases with type 2 diabetes mellitus were integrated with definite bactericemia. The age, gender, hospital stay, organ system failure, complications and comorbidities were analysis for mortality evaluation.

Results: The overall mortality rate is 13.0% and the most common bacteria are *Escherichia coli* (*E. coli*). Comparing to else microorganism, the group presented older, female dominant, more comorbidities, less failed organs, shorter hospital stay, and extremely low mortality rate.

Discussion: The relative low mortality rate in patients with diabetes was reconfirmed recently. The effects of *E. coli* on gender distribution, length of hospital stay, and mortality need to be considered for clinical practice.

Conclusion: The significant variation of mortality between common pathogenic bacteria indicates the need of clinical practice remodeling.

P32 Effects of measures and policies based on preventive guidance and intervention for the metabolic syndrome

H IMAI, H NAKAO, F SATA

National Institute of Public Health, Japan

Objective: In Japan, measures were instituted via preventive guidance and intervention for people with the metabolic syndrome

(METS) based on national lifestyle disease countermeasures from 2008. The objective of this research was to collect data from people receiving health checks and investigate public guidance and intervention to clarify results of this large-scale social experiment on public health.

Method: Model prefectures were selected in regions throughout Japan to avoid regional bias and data were collected from METS patients and a reserve group in these prefectures. People who did or did not receive health guidance and intervention were analyzed to determine the effects such activities.

Results: This study was performed on 383,430 people from 40 to 74 years old examined for METS in 8 model prefectures. They included 60,964 who received health guidance. To clarify effects of preventive guidance and intervention, differences in changes in body weights, waist size, blood glucose (HbA1c), triglycerides and blood pressure for 2008 and 2009 were analyzed. Body weights dropped by 2.4% in men and 3.0% in women. Other values also showed decreases.

Discussion: Quantitative evaluation was performed on health guidance in the first year of a new system of measures against lifestyle diseases. Data were collected nationwide to avoid bias and the effects of health guidance and intervention were examined. Prompt clarification of these results is indispensable in validation of the new preventive measures. The results are highly useful for all persons related to this system.

P33 Socioeconomic status and metabolic syndrome among rural women of Bangladesh

AMS ISLAM^{1,2}, S JESMIN^{1,2}, MR ISLAM^{1,2}, MS MIA^{1,2}, SN SULTANA^{1,2}, S ZAEDI^{1,2}, S KIMURA¹

¹National Center for Global Health and Medicine (NCGM), Tokyo, Japan; ²Health and Diseases Research Center for Rural Peoples (HDRCRP), Dhaka, Bangladesh

Background: Metabolic syndrome (MS) is now considered as a global epidemic. Although, socioeconomic status (SES) has been identified as an important determinant of health across a broad range of health issues, however, no previous studies of MS so far have explicitly examined the effect of SES in the Bangladeshi context. The purpose of this study, thus, was to estimate the prevalence of MS and its association with the socioeconomic conditions in Bangladeshi rural women.

Methods: A total of 1485 apparently healthy rural women aged ≥ 15 years were studied using a population based cross-sectional survey following the World Health Organization's STEPS approach (modified). Education, family income, land ownership and living housing area were considered as indicators of SES.

Results: The prevalence of MS was 35.56. Higher prevalence was found among the respondents with higher SES (MS vs. non-MS: family income ≥ 140 USD 3.6% vs. 2.7%, family income 70–139 USD 21% vs. 15.5%, family income <70 USD 74.5% vs. 78%, $P = 0.071$; family having land 71.8% vs. 52.3%, family having no land 26.6% vs. 43.2%, $P \leq 0.001$; family living area >1,000 sq. ft 84.4% vs. 70.5%, family living area $\leq 1,000$ sq. ft 15.6% vs. 29.5%, $P \leq 0.001$; having formal education 43.3% vs. 50.4%, having no education 56.7% vs. 49.6%, $P = 0.017$).

Conclusions: MS was significantly more prevalent among upper SES compared to lower SES which indicates SES as an emerging risk factor of MS in developing countries like Bangladesh which further calls for a need of promoting health awareness and increasing healthy rural amenities for prevention.

P34 Prevalence of metabolic syndrome in pre- and post-menopausal rural women of Bangladesh: result from a population-based study

R ISLAM^{1,2}, S JESMIN^{1,2}, S MIA^{1,2}, AMS ISLAM^{1,2}, SN SULTANA^{1,2}, S ZAEDI^{1,2}, A RAHMAN¹, N YAMAGUCHI², M HIROE², S KIMURA²

¹Health and Diseases Research Center for Rural Peoples (HDCRCP), Dhaka, Bangladesh; ²National Center for Global Health and Medicine (NCGM), Tokyo, Japan

Background: Gender differences in prevalence and consequences of the metabolic syndrome (MS) as a strong predictor of cardiovascular disease (CVD) are challenging problems. Post-menopausal status may explain in part the cause of acceleration of CVD with aging.

Aim: The present community-based, cross-sectional investigation was aimed at identifying the principal components of risk variables associated with the metabolic syndrome in pre-menopause and post-menopausal Bangladeshi rural women.

Methods: This is a descriptive cross-sectional study carried out at rural Bangladeshi women. Socio-demographic information, anthropometric measurements and blood pressure were obtained from the subjects in a standardized manner. Venous samples were collected for necessary investigations and analyzed at the hospital central laboratory.

Findings: 1802 subjects (1094 pre-menopause and 708 post-menopause) with a mean age of 39.9 ± 13.9 (range 15–85) years were studied. Prevalence of the modifiable cardiovascular risk factors screened were as follows: generalized BMI ≥ 30 kg/m² 2.8% (pre-menopause 3.0%, post-menopause 2.5%, $P = 0.333$), truncal obesity 8.4% (pre-menopause 8.4%, post-menopause 8.4%, $P = 0.51$), hypertension 28.2% (pre-menopause 14.5%, post-menopause 49.4%, $P < 0.001$), elevated fasting blood glucose (≥ 6.1 mmol/L) 35.4% (pre-menopause 26.2%, post-menopause 49.6%, $P < 0.001$), hypercholesterolaemia 35.5% (pre-menopause 32.8%, post-menopause 39.7%, $P = 0.002$), elevated LDL-cholesterol 42.7% (pre-menopause 41.5%, post-menopause 44.0%, $P = 0.208$), low HDL-cholesterol 84.0% (pre-menopause 80.7%, post-menopause 87.3%, $P < 0.001$), hypertriglyceridaemia 28.7% (pre-menopause 23.2%, post-menopause 37.1%, $P < 0.001$), MS 25.8% (pre-menopause 17.4%, post-menopause 38.8%, $P < 0.001$) and atherogenic index (HDLc/TC <0.18) 32.8% (pre-menopause 23.4%, post-menopause 42.2%, $P < 0.001$).

Conclusions: The prevalence of metabolic syndrome and the associated modifiable cardiovascular risk factors were higher in post-menopausal women compared to those in pre-menopausal women in rural Bangladesh.

P35 Prevalence of metabolic syndrome among rural Bangladeshi women

R ISLAM^{1,2}, S MIA^{1,2}, A RAHMAN¹, SN SULTANA^{1,2}, R MAHMOOD¹, AMS ISLAM^{1,2}, S ZAEDI^{1,2}, N YAMAGUCHI², M HIROE², S KIMURA², S JESMIN^{1,2}

¹Health & Diseases Research Center for Rural Peoples (HDCRCP), Dhaka, Bangladesh; ²National Center for Global Health and Medicine (NCGM), Tokyo, Japan

Objective: Metabolic syndrome (MS) is described as a cluster of abnormalities that confers an increased risk of developing atherosclerotic cardiovascular diseases and also type 2 diabetes mellitus. MS is now considered as a global epidemic; with current estimates revealing that about 20–30% of the adult population worldwide is

affected by this syndrome. The purpose of the present study was to assess the prevalence of metabolic syndrome - related disorders in rural women of Bangladesh.

Methods: In the present study, a total of 1485 apparently healthy rural Bangladeshi women aged ≥ 15 years were studied using a population based cross-sectional survey according to the World Health Organization's STEPS approach (modified). The prevalence of MS was estimated using NCEP ATP III, modified NCEP ATP III and IDF criteria.

Results: The prevalence rates of MS were 25.05% (NCEP ATP III), 35.56% (modified NCEP ATP III), and 17.51% (IDF), as revealed by the present study. Furthermore, 10.03% had excess waist circumference, 29.43% had elevated blood pressure, 30.57% had elevated fasting plasma glucose level, 85.05% had low HDL values and 26.87% had increased triglyceride values. Low plasma HDL level was found to be the most common abnormality in this population. Elevated waist circumference was the least frequent component.

Conclusions: The present study shows a high prevalence of MS and its associated risk factors in rural Bangladeshi women. These findings are important in that they provide insights that should be helpful in formulating public health policy and in the development of future health prevention strategies in Bangladesh.

P36 Assessing prevalence of metabolic syndrome and association of this syndrome with coronary heart disease (CHD) in patients were referred to the heart center of Hamedan University of Medical Science

L JAMSHIDI, A SEIF

Islamic Azad University, Hamedan Branch, Iran

Objective: The metabolic syndrome is a growing health problem in the world. The metabolic syndrome, which consists of multiple inter-related risk factors, increases the risk for atherosclerotic cardiovascular disease by 1.5–3 folds, and raises the risk for type 2 diabetes by 3–5 folds. It affects over 26 percent of adults, or over 50 million Americans. Patients with metabolic syndrome (M.S) are known to be at high risk for heart disease and diabetes. The aim of this study was, Assessing prevalence of metabolic syndrome and association of this syndrome with coronary heart disease in patients were referred to the heart center of Hamedan University 1387.

Methods: A cross sectional study has been made with 1064 patient. We examined all C.H.D patient (at total 514) attended in a heart center during 3 month and 550 without CHD disease. Patients with 3 or more of the following symptoms (NCEP & ATPIII criteria) are considered to have the Metabolic syndrome: abdominal obesity (waist >102 cm for men; >88 cm for women), increased triglycerides (>150 mg/dL); low HDL-C (<40 mg/dL in men; <50 mg/dL in women), elevated blood pressure $\geq 130/\geq 85$ mmHg, and a raised fasting glucose (≥ 110 mg/dL).

Results: We have found significant differences between M.S and C.H.D. The prevalence of M.S was 32.5 in patient and 21.3 in other population. There were 46.3% women & 53.7% men and 13.6% smoking. Hypertriglyceridemia equal to or over 150 mg/dL was 39.1%

Conclusion: The prevalence of M.S in the sample of C.H.D patient was very high, and their correlation with other risk factors very significant. Thus, the cardiovascular risk of this patient is very high.

P37 Comparison of serum lipid levels in obese adult in Hamedan, Iran, 2010

L JAMSHIDI, A SEIF

Islamic Azad University, Hamedan Branch, Hamedan, Iran

Obesity is a significant health crisis around the world. Of great concern are the data pointing to the recent increase in the prevalence of obesity irregardless of age group and country. A lipid disorder increases risk for atherosclerosis, and thus for heart disease, stroke, high blood pressure (hypertension), and other problems. Abnormal cholesterol and triglyceride levels may also be caused by being overweight or obese.

Objective: The objective of this study was to quantify the prevalence of overweight and obesity and Comparison of serum lipid levels in adult.

Materials and methods: During in this study 1327 (721 male and 584 females) aged 24–60 years were studied. A questionnaire was filled, and weight and height and WHR were measured. Plasma cholesterol and triglyceride levels were measured after an overnight fast.

Discussions and conclusions: The body mass index (BMI) was calculated and adjusted for age and sex. Prevalence of overweight and obesity were 41.8%. BMI increased with age, and it was higher in those who had lower levels of physical activity. Increase of the serum cholesterol, LDL, TG level was strongly associated with the abdominal obesity. This study highlights the high prevalence of overweight and obesity in adult in Hamedan.

P38 Sleep problems and weight gain in Iranian adults

L JAMSHIDI, A SEIF

Islamic Azad University, Hamedan Branch, Iran

Objective: The prevalence of obesity is increasing at an alarming rate in many parts of the world. Obesity is a significant health crisis around the world. Individual and environmental factors that have an influence on energy balance are not fully understood. Current treatments for obesity have been largely unsuccessful in maintaining long-term weight loss, suggesting the need for new insight into the mechanisms that result in altered metabolism and behavior and may lead to obesity. Parallel to an increase in body weight, one has also observed a reduction in sleep times. The aim of this study was to examine the Sleep problems and anthropometric factors (weight gain) in Iranian adults, hamedan.

Materials and methods: A questionnaire was filled and weight, baseline waist circumference measured. We examined association between BMI and quality of sleep. Body composition measurements and self-reported sleep duration were determined. Changes in adiposity indices were compared between short- (5–6 h), average- (7–8 h), and long- (9–10 h) duration sleeper groups. After adjustment for age, sex, and baseline body mass index, short-duration sleepers gained 2.24 kg more and long-duration sleepers gained 1.37. Short- and long-duration sleepers were 34.2% and 11.7% more likely to experience a 5 kg weight gain. The risk of developing obesity was elevated for short- and long-duration sleepers as compared with average-duration sleepers.

P39 Circulating levels of VEGF and its receptors, sVEGF-R1 and sVEGF-R2 in metabolic syndrome in Bangladeshi rural women

S JESMIN^{1,2}, N YAMAGUCHI², R ISLAM^{1,2}, S MIA^{1,2}, AMS ISLAM^{1,2}, SN SULTANA^{1,2}, S ZAEDI^{1,2}, M MOROI², M HIROE²

¹Health and Diseases Research Center for Rural Peoples (HDRCRP), Dhaka, Bangladesh; ²National Center for Global Health and Medicine (NCGM), Tokyo, Japan

Objective: Metabolic syndrome (MS) is associated with impaired angiogenesis where vascular endothelial growth factor (VEGF) plays a key role in angiogenesis through binding to its specific receptor, sVEGF-R1 and sVEGF-R2. The purpose of the present study was to assess circulating levels of VEGF, sVEGF-R1, and sVEGF-R2 in subjects with Metabolic Syndrome (MS) or without metabolic syndrome (non-MS) and further examined their association with clinical and metabolic parameters.

Methods and results: A total of 1485 rural Bangladeshi women aged ≥ 15 years were studied using a population based cross-sectional survey. The prevalence rates of MS were 25.05% (NCEP ATP III). VEGF levels were significantly increased in MS subjects (MS vs. non-MS: 575 vs. 490, $P < 0.001$). There were no significant relation of sVEGF-R1 and sVEGF-R2 with MS (sVEGF-R1, MS vs. non-MS: 446 vs. 667, $P = 0.093$; sVEGF-R2, MS vs. non-MS: 8943 vs. 9400, $P = 0.0344$). In multivariable analyses, we found that VEGF had significant positive associations with fasting blood glucose ($r = 0.181$, $P < 0.001$), BMI ($r = 0.143$, $P < 0.001$), cholesterol ($r = 0.101$, $P < 0.001$), non-HDL cholesterol ($r = 0.091$, $P < 0.001$), LDL cholesterol ($r = 0.079$, $P = 0.007$), insulin ($r = 0.075$, $P = 0.022$), DBP ($r = 0.064$, $P = 0.025$) and SBP ($r = 0.057$, $P = 0.048$) even after adjusting for age. Multiple regression analysis revealed that fasting blood glucose ($\beta = 0.158$, $P = 0.001$) and BMI ($\beta = 0.083$, $P = 0.017$) were independent determinants of VEGF. We also found that mean VEGF levels increased in proportion to the accumulation of components of MS.

Conclusions: The correlation of VEGF needs further investigations to define the clinical utility and predictive value of serum VEGF levels in MS.

P40 Clinical characteristics of patients with rhabdomyolysis in hyperglycemic emergency states

TS JUNG, JR HAHM

Department of Internal Medicine, Institute of Health Sciences, Gyeongsang National University School of Medicine, Jinju city, South Korea

Objective: The purpose of this study was to investigate the prevalence of rhabdomyolysis in a hyperglycemic emergency state and its significance on the clinical course and prognosis of patients with hyperglycemic emergency state.

Patients and Methods: We reviewed medical records of hyperglycemic emergency patients who were checked serum creatine kinase levels from May 2003 to April 2010. We assessed clinical characteristics, biochemical profiles, and clinical course of the patients and analyzed according to the occurrence of rhabdomyolysis.

Results: The prevalence of rhabdomyolysis was 27.1% ($n = 36$) among 133 patients. Patients with rhabdomyolysis had higher rates of hemodialysis and mortality than those without rhabdomyolysis.

The factors associated with rhabdomyolysis in hyperglycemic emergency state were increased serum anion gap and serum creatinine ($P < 0.05$).

Conclusion: Rhabdomyolysis was commonly combined with hyperglycemic emergency state and this aggravated clinical course and increased mortality. Our results suggest that rhabdomyolysis in hyperglycemic emergency is associated with increased serum anion gap and serum creatinine on admission.

P41 Diabetes clinical model in remote area

MS KAMEL

Internal Medicine Department, Minia University, Egypt

Control of diabetes mellitus is a high priority for primary health care systems. One innovative method of diabetes care delivery is the use of structured diabetes care in primary care. This includes the use of chronic care diabetes clinics or mini-clinics operated by general practitioners in primary care. There is limited experience with this model in non-Western settings. This study sought to evaluate a multi-component structured approach to diabetes care in primary care including chronic care diabetes clinics in a remote area. A multifaceted intervention was initiated in the diabetes clinic composed of a diabetic flow chart, and educational programs for clinic nurses, doctors and patients. The study intervention took place over a period of 24 months with the diabetic outcomes (fasting blood glucose, HBA1C, BMI, blood pressure, renal functions, fundus examination, lipid profile and CVS morbidity and mortality) and adherence to follow-up appointments. Knowledge and satisfaction questionnaires were also administered to patients. A new diabetes clinic was established in One-day surgery hospital, Samalout, Minia Governorate, 250 km south to Cairo. It was designed as a structured diabetes care with a complex intervention comprising diabetes registry, patient education, educated diabetes nurse, local clinical protocol and structured communication across the primary-secondary care interface.

P42 Independent association of TG/HDL-C with urinary albumin excretion in normotensive subjects in a rural Korean population

JK KIM¹, HT KANG^{1,2}, JY KIM³, J LIMTON⁴,
JH YOON^{5,6}, SB KOH^{5,6,7}

¹Department of Family Medicine, Wonju College of Medicine, Yonsei University, Wonju-city, Gangwon-do, South Korea;

²Department of Medicine, Graduate school of Yonsei University, Seoul, South Korea; ³Division of Cardiology, Department of Internal Medicine, Wonju College of Medicine, Yonsei University, Wonju-city, Gangwon-do, South Korea;

⁴International Health Care Center, Severance Hospital, College of Medicine, Yonsei University, Seoul, South Korea;

⁵Department of Preventive Medicine, Wonju College of Medicine, Yonsei University, Wonju-city, Gangwon-do, South Korea; ⁶Department of Environmental and Occupational Medicine, Wonju College of Medicine, Yonsei University, Wonju-city, Gangwon-do, South Korea; ⁷Institute of Genomic Cohort, Wonju College of Medicine, Yonsei University, Wonju-city, Gangwon-do, South Korea

Background and Aims: Dyslipidemia is associated with renal dysfunction and cardiovascular diseases. The ratio of triglycerides (TG, mg/

dL) to high-density lipoprotein cholesterol (HDL-C, mg/dL) is a reliable indicator of insulin resistance and atherosclerotic diseases. The purpose of this study was to examine the association between TG/HDL-C and albuminuria in rural Korean adults.

Methods and Results: This cross-sectional study included 9,094 adult subjects (4,091 men, 5,003 women) who were enrolled in the Korean Genomic Rural Cohort (KGRC) and aged 40 years or more. Albuminuria was defined as a urine albumin/creatinine ratio (UACR) ≥ 30 mg/g. Participants were categorized into quartile groups by TG/HDL-C for comparison. Median UACR and albuminuria prevalence increased in a linear fashion in both genders according to TG/HDL-C quartile. Compared to the lowest quartile of TG/HDL-C (<1.94 in men, <1.71 in women), the odds ratios (ORs) for albuminuria in participants who were categorized in the highest quartile of TG/HDL-C (≥ 4.98 in men, ≥ 4.20 in women) were 1.30 (95% confidence interval (CI), 0.97–1.75) and 1.36 (1.03–1.79) in men and women, respectively, when adjusted for age, systolic blood pressure, and other covariates. In normotensive men and women, the ORs for albuminuria in the highest TG/HDL-C quartile were 1.58 (1.04–2.39) and 1.68 (1.15–2.45), respectively, even after full adjustment. In contrast, TG/HDL-C was not associated with albuminuria in hypertensive subjects.

Conclusions: TG/HDL-C was independently associated with increased prevalence of albuminuria in normotensive rural Korean subjects aged 40 years or more in KGRC.

P43 Insulin resistance, inflammation, and nonalcoholic fatty liver disease in the metabolically healthy and non-obese adults over 50 years

S KIM, J CHOI, M KIM

Department of Family Medicine, Konkuk University Medical Center, Konkuk University School of Medicine, Seoul, Korea

Objective: The aim of this study is to examine the association of insulin resistance and inflammation with NAFLD in metabolically healthy and non-obese adults over 50 years.

Materials/Methods: This was a cross sectional study of 759 subjects who were aged 50 years and older. Diagnosis of NAFLD was based on sonographic evidence of fatty liver without significant alcohol consumption and other cause of chronic liver disease. We defined metabolically healthy subjects as having nothing of metabolic components: high blood pressure ($\geq 130/85$ mmHg), elevated fasting glucose (≥ 100 mg/dL), hypertriglyceridaemia (≥ 150 mg/dL), low high density lipoprotein-cholesterol (men, <40 mg/dL; women, <50 mg/dL), and abdominal obesity measured by a waist circumference of ≥ 90 cm for men and ≥ 80 cm for women. High sensitivity C-reactive protein (hs-CRP), homeostasis model assessment of insulin resistance (HOMA-IR), and uric acid were divided into quartile groups. We computed odds ratios (OR) for each quartile relative to the lowest quartile group.

Results: After adjusting for age, sex, smoking status, regular exercise, hs-CRP, HOMA-IR, and uric acid, significant association was found between NAFLD and higher levels of hs-CRP, HOMA-IR, and uric acid. After adjusting for age, sex, smoking status, regular exercise, hs-CRP, HOMA-IR, and uric acid, the ORs (95% confidence interval) of NAFLD with the highest quartile of hs-CRP, HOMA-IR, and uric acid comparing the lowest quartile of them were 2.58 (1.03–6.50), 2.55 (1.08–6.05), and 5.15 (1.78–14.89), respectively.

Conclusions: Insulin resistance and inflammation are associated with NAFLD in metabolically healthy and non-obese adults over 50 years.

P44 Effects of fenofibrate therapy on circulating adipocytokines in patients with primary hypertriglyceridemia

K KOH¹, M QUON²

¹Gachon University Gil Hospital; ²Diabetes Unit, NIH, USA

Background: Adipocytokines including adiponectin and leptin may serve important roles in linking metabolic signals, inflammation, and atherosclerosis. We investigated effects of fenofibrate therapy on endothelial dysfunction and adipocytokine profiles.

Methods: A randomized, single-blind, placebo-controlled, cross-over study was conducted in 53 patients with primary hypertriglyceridemia. We administered placebo or fenofibrate 200 mg daily for 8 weeks.

Results: When compared with placebo, fenofibrate therapy decreased non-HDL cholesterol, apolipoprotein B, and triglycerides while increasing HDL-cholesterol and apolipoprotein A-I (all $P < 0.001$) and decreasing total cholesterol ($P < 0.05$). Moreover, fenofibrate therapy substantially improved the percent flow-mediated dilator response to hyperemia by $55 \pm 7\%$ ($P < 0.001$), lowered plasma levels of fibrinogen and TNF- α by $9 \pm 2\%$ ($P < 0.001$) and $6 \pm 3\%$ ($P = 0.014$), respectively, and lowered hsCRP from 1.10 to 0.90 mg/L ($P = 0.004$). When compared with placebo, fenofibrate therapy increased plasma levels of adiponectin by $17 \pm 4\%$ ($P = 0.001$), insulin sensitivity by $4 \pm 1\%$ (as assessed by QUICKI, $P = 0.009$), and decreased plasma levels of leptin and resistin by $4 \pm 7\%$ ($P = 0.022$) and $10 \pm 3\%$ ($P = 0.001$), respectively. There were correlations between percent changes in QUICKI and percent changes in adiponectin levels ($r = 0.279$, $P = 0.043$) or leptin ($r = -0.280$, $P = 0.042$).

Conclusions: Fenofibrate therapy significantly improved percent flow-mediated dilator response to hyperemia, reduced pro-inflammatory biomarkers, and improved adipocytokines levels and insulin sensitivity in hypertriglyceridemic patients. Thus, actions of fenofibrate to regulate adipocytokine levels may be linked to beneficial effects on pro-inflammatory status that simultaneously improve both endothelial and metabolic function in patients with primary hypertriglyceridemia.

P45 Quercetin/adenosine combination induced insulin resistance in high fat diet-fed mice

CY LEE

Monash University, Sunway Campus

Food-drug or food-food interactions refer to a situation whereby one or more substances alter(s) the bioavailability or the clinical effectiveness of the other substance when they are being taken concomitantly. Both quercetin and adenosine are plant constituents reported to be effective in improving dyslipidemia. This study looked at the summative effect of these two compounds in high fat diet-induced obesity. C57BL/6 mice were divided into five groups, and each group was fed with the following diet: low fat diet or control (C); high fat diet (HF); high fat diet +0.8% quercetin incorporated into drinking water (Q); high fat diet +0.01% adenosine in water (A); and high fat diet +0.8% quercetin +0.01% adenosine, both compounds dissolved in water (QA). Results showed that quercetin in the presence of adenosine (QA), was not effective in preventing body weight gain and adiposity. QA potently kept the plasma glucose and adiponectin at basal levels, but significantly elevated insulin level, implying the onset of insulin resistance (IR). Adenosine and quercetin, which separately up-regulated endothelial nitric oxide synthase (eNOS)

expression, caused a distinctive reduction of eNOS expression when given as a mixture to mice. As reported, IR led to the impairment of insulin-induced eNOS activation. Quercetin per se did not have any effect on liver fatty acid-binding protein (LFABP) expression. However, quercetin together with adenosine, have down-regulated LFABP. In conclusion, there was no beneficial effect of consuming two compounds which individually claimed to improve metabolic syndrome parameters.

P46 The effects of complex exercise training on muscle strength and endurance of lower-extremity, balance and gait abilities in elderly people with diabetes mellitus: a randomized controlled trial

SW LEE

Department of Physical Therapy, Sahmyook University, Seoul, Korea

Older people with diabetes mellitus and neuropathy have a decreased balance and gait abilities. Lower-extremity exercise and balance training increase physical performance in some older adults. Complex exercise training designed to increase physical performance. The purpose of this study was to assess the effects of complex exercise training on muscle strength and endurance of lower-extremity, balance and gait ability in older people with diabetes mellitus. We conducted a randomized controlled trial involving 39 community-dwelling individuals older than 65 years, who have a diabetes mellitus. They were randomly assigned to an intervention group ($n = 19$) and control group ($n = 20$). The intervention was an 8 weeks complex exercise training program composed of resistance training and balance training by using elastic band and balance pad. Control group executed no physical training program. Both group had the education of physical health. Outcome measures were muscle strength and endurance of lower-extremity, balance and gait abilities. After a completion of training, there were significantly increased by complex exercise that the strength of knee extension and ankle dorsiflexion, muscle endurance, balance ability, and gait ability ($P < .05$). Interaction between group and time had a significant effect on the all factors except for step and stride length ($P < .05$). In conclusion, the complex exercise training improved lower legs muscle strength, muscle endurance, balance and gait ability in elders with diabetes mellitus. These results suggest that elders with diabetes mellitus will be prevented about risk of a fall at all by complex exercise training.

P47 Dietary animal and plant protein intake and the associations with overweight and obesity indicators in European adolescents: the Helena study

Y LIN¹, I HUYBRECHTS¹, M GONZALES², M KERSTING³, C OTTEVAERE¹, C VEREECKEN¹, T MOURATIDOU⁴, E GRAMMATIKAKI⁵, G FREDERIC⁶, M FERRARI⁷, L HALSTRÖM⁸, M SJÖSTRÖM⁹, S GOMEZ¹⁰, L ESPERANZA¹⁰, D MOLNÁR¹¹, LA MORENO⁴, SD HENAUW^{1,12}, ON BEHALF OF THE HELENA CONSORTIUM

¹Unit Nutrition and Food Safety, Department of Public Health, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium; ²Institut für Ernährungs- und Lebensmittelwissenschaften – Ernährungphysiologie, Rheinische Friedrich Wilhelms Universität, Germany; ³Research Institute of Child Nutrition Dortmund, Rheinische Friedrich-Wilhelms-Universität Bonn, Germany; ⁴GENUD (Growth, Exercise, Nutrition and Development) Research Group, University of Zaragoza, Zaragoza, Spain; ⁵Dietician- Public Health Nutritionist, Research Associate Department of Nutrition and Dietetics, Harokopio University, Greece; ⁶Faculté de médecine, University of Lille 2, Lille, France; ⁷Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione, Italy; ⁸Karolinska Institutet, Sweden; ⁹Department of Biosciences and Nutrition, Karolinska Institutet, Sweden; ¹⁰Consejo Superior de Investigaciones Científicas, Spain; ¹¹Pécsi Tudományegyetem, University of Pécs, Hungary; ¹²University College Ghent, Department of Nutrition and Dietetics, Faculty of Health Care Vesalius, Ghent, Belgium

Objectives: To evaluate dietary animal and plant protein intakes in European adolescents, and to investigate the associations with anthropometry (BMI z-score, Body fat percentage (BF%)).

Methods: 1804 (47% males) European adolescents (Austria, Belgium, France, Germany, Greece, Italy, Spain and Sweden) aged 12.5–16.5 years completed two non-consecutive computerized 24 h dietary recalls. Mixed linear model analysis was used to investigate the association between animal and plant protein intakes and anthropometry.

Results: Mean animal protein intake (58 g/d) contributed most to total protein intake (96 g/d). Animal and plant protein intakes were significantly lower in females than males ($P < 0.001$ for both). The younger age-group (12.5–14.9) consumed significantly less plant protein than the older age-group (15.0–16.9 years) ($P < 0.001$). Furthermore, mixed linear model analysis showed that intakes of total, animal and plant protein were inversely associated with BF% ($\beta = -0.467$, $P < 0.001$; $\beta = -0.197$, $P = 0.034$; $\beta = -0.237$, $P < 0.001$, respectively). However, no significant associations were found between total, animal, plant protein intakes and BMI z-scores.

Conclusion: Total, animal and plant protein intakes might decrease the obesity risk of European adolescents via improvement of body composition.

P48 Dietary fibre intake and the associations with overweight and obesity indicators in European adolescents: the Helena study

Y LIN¹, I HUYBRECHTS¹, M GONZALES², M KERSTING³, T DE VRIENDT¹, C VEREECKEN¹, T MOURATIDOU⁴, E GRAMMATIKAKI⁵, G FREDERIC⁶, E TOTI⁷, L HALSTRÖM⁸, M SJÖSTRÖM⁹, J WARNBERG¹⁰, S GOMEZ¹⁰, D MOLNÁR¹¹, LA MORENO⁴, S DE HENAUW^{1,12}, ON BEHALF OF THE HELENA CONSORTIUM

¹Unit Nutrition and Food Safety, Department of Public Health, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium; ²Institut für Ernährungs- und Lebensmittelwissenschaften – Ernährungphysiologie, Rheinische Friedrich Wilhelms Universität, Germany; ³Research Institute of Child Nutrition Dortmund, Rheinische Friedrich-Wilhelms-Universität Bonn (Germany); ⁴GENUD (Growth, Exercise, Nutrition and Development) Research Group, University of Zaragoza, Zaragoza, Spain; ⁵Dietician- Public Health Nutritionist, Research Associate Department of Nutrition and Dietetics, Harokopio University, Greece; ⁶Faculté de médecine, University of Lille, Lille, France; ⁷Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione, Italy; ⁸Karolinska Institutet, Sweden; ⁹Department of Biosciences and Nutrition, Karolinska Institutet, Sweden; ¹⁰Consejo Superior de Investigaciones Científicas, Spain; ¹¹Pécsi Tudományegyetem, University of Pécs, Hungary; ¹²University College Ghent, Department of Nutrition and Dietetics, Faculty of Health Care Vesalius, Ghent, Belgium

Objectives: To evaluate total dietary fibre (DF) intake in European adolescents, and to investigate the associations between total, water-soluble and water-insoluble DF intakes and anthropometry (BMI z-score and Body fat percentage (BF%)).

Methods: 1804 (47% males) European adolescents (Austria, Belgium, France, Germany, Greece, Italy, Spain and Sweden) aged 12.5–16.5 years completed two non-consecutive computerized 24 h dietary recalls. Mixed linear model analysis was used to investigate the association between total, water-soluble and water-insoluble DF intakes and anthropometry.

Results: Mean intake of DF (20 g/d) was significantly lower in females and the younger age-group (12.5–14.9) than in males and the older age-group (15.0–16.9 years) ($P < 0.001$ for both). However after adjustment for energy intake, DF intake was significantly lower in males (7.8 g/(d*1000kcal) than in females (8.9 g/(d*1000kcal) ($P < 0.001$). In addition, obese subjects were observed to have the lowest energy-adjusted DF intake (8.1 g/(d*1000kcal)). Furthermore, mixed linear model analysis showed that total, watersoluble and water-insoluble DF intakes, were inversely associated with BF% ($\beta = -0.117$, $P < 0.001$; $\beta = -0.028$, $P = 0.002$; $\beta = -0.091$, $P < 0.001$, respectively). However, no significant associations were found between total, water-soluble and water-insoluble DF intakes and BMI z-score.

Conclusion: Total, energy-adjusted, water-soluble and water-insoluble DF might play a role in the prevention of obesity in European adolescents by improving body composition.

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Can mind-body movement therapy combat central obesity and other indicators of metabolic syndrome - promising findings from recent clinical trials

X. LIU^{1,2}, Y.D. MILLER³, N.W. BURTON¹, J-H CHANG¹, W.J. BROWN¹

¹School of Human Movement Studies, The University of Queensland, Australia; ²Centre for Integrative Clinical and Molecular Medicine, School of Medicine, The University of Queensland, Australia; ³School of Psychology, The University of Queensland, Australia

Introduction: Metabolic syndrome is now recognized as a strong predictor of life threatening diseases such as diabetes, cardiovascular disease and stroke. There is growing evidence to suggest that mind-body movement therapy (Tai Chi/Qigong) may improve indicators of metabolic syndrome in people with diabetes. The aim of this study was to assess the efficacy of Tai Chi/Qigong on central obesity and other indicators of metabolic syndrome in adults with raised blood glucose levels.

Methodology: A 12 week single-group pre-post feasibility study of 11 participants (3 male and 8 female; mean age = 56 years) with raised blood glucose levels was first conducted to assess the feasibility and acceptability of the intervention program, followed by a 12 week randomized controlled trial. The randomized controlled trial involved 41 participants (16 male and 25 female; mean age = 59 years) with pre-diabetes or type 2 diabetes, recruited from the local community. The 41 participants were randomly allocated to an intervention (n = 20) or usual medical care control group (n = 21). Intervention group participants attended a 12-week Tai Chi/Qigong training program. Indicators of metabolic syndrome (body mass index, waist circumference, systolic and diastolic blood pressure, fasting blood glucose, triglycerides, and HDL-C) were assessed immediately prior to and after the 12 week intervention in the two clinical trials.

Results: The feasibility study demonstrated that the 12 week intervention showed significant improvements in four of the seven indicators of metabolic syndrome including body mass index (mean difference = -1.05, 95% CI = -1.48; -0.63, p < 0.001), waist circumference (mean difference = -2.80 cm, 95% CI = -4.97; -0.62, p < 0.05), and both systolic (mean difference = -11.64 mm Hg, 95% CI = -19.46; -3.51, p < 0.01) and diastolic blood pressure (mean difference = -9.73 mm Hg, 95% CI = -13.58; -5.88, p < 0.001). There were also downward trends in the three haematological measures. The proportion of study participants with metabolic syndrome decreased from 64% to 36%. Overall, the acceptability of intervention program was found to be high with good adherence in the feasibility study.

Linear regression analyses of the randomized controlled trial showed that there were significant improvements in body mass index and waist circumference in the intervention group, compared with the control group (body mass index: between-group mean difference = -1.17, 95%CI = -1.66; -0.67, p < 0.001; waist circumference: between-group mean difference = -4.78 cm, 95%CI = -6.36; -3.20, p < 0.001). There were also a significant improvement in fasting blood glucose (mean difference = -0.47 mmol/L, 95% CI = -0.79; -0.14, p < 0.01) and a trend towards significant improvement in triglycerides (mean difference = -0.25 mmol/L, 95%CI = -0.55; 0.04, p = 0.090) in the intervention group, but not observed in the control group.

Conclusions: The findings provide grounds for cautious optimism in relation to the role of the mind-body movement therapy in the prevention and management of indicators of metabolic syndrome. Larger controlled studies are now required to confirm these preliminary findings.

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Does the ckd epidemiology collaboration (CKD-EPI) equation perform better than the modification of diet in renal disease (MDRD) study equation for estimating GFR levels above 60 mL/min/1.73m² in subjects with diabetes?

RJ MACISAAC^{1,2,3}, K CHEONG², E EKINCI², S VERMA², E PREMARATNE², G JERUMS^{2,3}

¹Department of Endocrinology and Diabetes, St. Vincent's Hospital, Fitzroy, Australia; ²Endocrine Centre, Austin Health, Heidelberg West, Australia; ³University of Melbourne, Australia

Background: The MDRD equation underestimates reference GFR levels > 60 mL/min/1.73m² whereas GFR levels estimated from the CKD-EPI equation are generally reported to be less biased. However, for subjects with diabetes the relative performance of the CKD-EPI and MDRD equations remains to be defined. We assessed the performance of the CKD-EPI and MDRD equations for estimating GFR (eGFR) compared with reference GFR measurements >60 mL/min/1.73m² in subjects with diabetes.

Methods: In a cross-sectional study of 199 consecutive clinic patients with diabetes, a reference GFR was measured using ^{99m}Tc-DTPA plasma clearance (iGFR). The mean iGFR was 80 ± 2.2 mL/min/1.73m² (mean ± SEM) and there were 139 subjects with a GFR >60 mL/min/1.73m². The bias (iGFR - eGFR) for the CKD-EPI and MDRD equations was compared.

Results: In the subgroup of subjects with an iGFR >90 mL/min/1.73m² (mean GFR 112 ± 2.0, n = 76) both equations significantly underestimated iGFR to a similar extent, CKD-EPI (-12 ± 1.4 mL/min/1.73m², P < 0.001) and MDRD (-11 ± 2.6 mL/min/1.73m², P < 0.001). In contrast, in the subgroup of subjects with an iGFR 60 to 89 mL/min/1.73m² (mean GFR 77 ± 1.2, n = 59) the CKD-EPI equation significantly overestimated iGFR values (+5.5 ± 1.5 mL/min/1.7 m², P < 0.001) whereas the MDRD equation did not (+4.3 ± 1.9 mL/min/1.73m²).

Conclusions: The CKD-EPI equation does not improve the bias of the MDRD equation when estimating GFR in subjects with diabetes and a reference GFR measurement >60 mL/min/1.73m². Both equations significantly underestimate reference GFR levels > 90 mL/min/1.73m².

P51

BMI estimation from waist measurement, neck circumference, mid-upper arm circumference and epworth sleepiness scale

AR MARSHALL¹, N HBOUBI², S JONES³

¹Cardiff University, Cardiff, UK; ²Neville Hall, Abergavenny, UK; ³Blaenau Gwent Weight Management, Blaenau Gwent, UK

Objectives: 1) To investigate whether waist, mid-arm and neck circumference, and the Epworth sleepiness scale can be used to accurately estimate BMI, 2) To determine whether patients have a preference between anthropometric measuring or weighing.

Method: Data was collected from 74 obese patients, recruited via Blaenau Gwent weight management clinic and 28 participants of a control group (BMI 18-30). Data collected included waist and height measurement, weight, mid-upper arm (MUAC) and neck circumference (NC), Epworth sleepiness score and any preference indicated when asked, between anthropometric measurement and traditional weighing to estimate BMI.

Both groups were separated into sex. Using formulaic rearrangement and trend analysis an equation (the H-M formula) was devised to estimate BMI for both groups of participants using the data col-

lected minus weight. This estimation was then compared against BMI calculated in the traditional method.

Results: BMI can be accurately estimated from waist, MUAC and NC collectively using the sex adjusted H-M formula. BMI did not correlate with Epworth sleepiness scores. Most patients have no preference as to whether they are weighed or body measurements taken.

Conclusions: The H-M formula is a cost-effective, quick, portable, non-invasive method to estimate BMI that can be used in patients who are unable or unwilling to be measured in the traditional way.

P52 Level of $\text{tnf-}\alpha$ in metabolic syndrome in Bangladeshi rural women

S MIA^{1,2}, S JESMIN^{1,2}, R ISLAM^{1,2}, AMS ISLAM^{1,2}, SN SULTANA^{1,2}, S ZAEDI^{1,2}, N YAMAGUCHI², M HIROE²

¹Health and Disease Research Center for Rural Peoples, Ena Arista, Baitul Aman Housing Society, Adabor, Bangladesh;

²National Center for Global Health and Medicine, Toyama, Shinjuku-ku, Tokyo, Japan

Among many inflammatory markers, tumor necrosis factor-alpha (TNF- α) emerged as a key cytokine that influences intermediary metabolism that play a great role in the development of dyslipidemia and insulin resistance as important features of the metabolic syndrome, which may eventually augment the risk of cardiovascular diseases and type 2 Diabetes Mellitus (DM). TNF- α has been demonstrated to directly interfere with the metabolic pathways of triglyceride and cholesterol. Therefore, TNF- α may gain a special importance when referring to atherosclerotic lesion development and the risk of acute cardiovascular events. The aim of the study was to observe the emergence of TNF- α level in subjects with and without Metabolic Syndrome (MS) in rural women of Bangladesh. The study subjects were recruited from the active participation of rural women of northern side in Bangladesh. Group 1 consisted of subjects without MS (non- MS) ($n = 319$) and group 2 consisted of subjects with MS ($n = 380$). MS was defined using the modified National Cholesterol Education Program Adult Treatment Panel (NCEP ATP III) criteria according to the World Health Organization Asia Pacific guidelines. The study revealed that average TNF- α level appeared as high in metabolic syndrome 8.9 ± 0.24 (mean \pm SE) with compare to non metabolic syndrome (7.7 ± 0.32 , $P = 0.006$). It also showed that mean TNF- α increased with the increase of number of metabolic syndrome components. Body mass index (BMI) also keeping a close relation with TNF- α where mean TNF- α was increasing noticeably corresponding to increase of BMI ($P = 0.024$).

P53 Prevalence of bmi and its related factors among primary school students in Sanandaj, Iran

K MORADI

Islamic Azad University, Sanandaj, Kurdistan

Introduction and Objectives: Over the past 3–2 decades, the prevalence of obesity among children has been increased significantly. The aim if this study was to assess the prevalence of BMI and its related factors among primary school students in Sanandaj, Iran in 1389.

Methods: This research was a descriptive - analytical study. The population included the primary school students in Sanandaj, who selected by random cluster sampling (800 samples -400 girls and 400 boys). At first, their height and weight measured and secondly their BMI calculated. Moreover, a questionnaire about BMI related

factors were completed by the respondents. After calculating BMI and determining the values of the top percentile and the values between 85 and 95 percentiles in proportion to the respective age and gender, obese, overweight and low weight students were determined. Data analyzed by SPSS software using of CHISQURE and Man-Whitney U Test.

Results: Prevalence of overweight and obesity in this study were 1.6% and 16.3%, respectively. Only, 23% of the students had normal weight. There was a significant difference in obesity by students' age, duration of walking to school, and students' appearance. Also, significant differences were found in obesity by the number of hours watching television per day, entertainment type, place of living, parents' education and job.

Conclusion: Unfortunately, the prevalence of childhood obesity in our country is high. Considering this high (16.3%) prevalence of obesity in this study and similar studies in the country and also its associated factors such as duration of walking to school, the number of hours watching television per day, entertainment type and place of living, designing more appropriate interventions is suggested.

P54 BMI in lean and waist circumference in overweight/obese subjects are the main determinants of insulin resistance in a migrant Indian population

NH NARAN, NJ CROWTHER

National Health Laboratory Services and the School of Pathology of the University of the Witwatersrand, Johannesburg, South Africa

Introduction: The principal anthropometric determinant of insulin resistance is thought to be visceral adipose tissue mass. When matched for BMI, this fat depot is known to be larger in subjects of Indian ancestry compared to those of European ancestry. The size of the visceral adipose tissue depot increases in parallel with rising BMI. The aim of this study was therefore to determine whether a proxy measure of visceral adipose mass, waist circumference, has a stronger influence on insulin resistance in overweight and obese than lean Indian subjects.

Methods: A convenience sample of 243 non-diabetic Indian subjects resident in Johannesburg were recruited into the study. Anthropometric and biochemical parameters were recorded. Insulin resistance was calculated using the HOMA model and the relationship between insulin resistance and anthropometric variables was determined.

Results: In the total cohort, HOMA correlated with BMI (beta = 0.41, $P < 0.0001$) independently of waist circumference (beta = 0.28, $P < 0.003$). In lean subjects BMI (beta = 0.31, $P = 0.0001$) was the principal determinant of HOMA whilst in overweight/obese subjects, waist circumference (beta = 0.30, $P = 0.003$) was the strongest correlate of insulin resistance.

Conclusion: This study demonstrates that in lean Indian subjects BMI is the major determinant of insulin resistance whilst in overweight and obese subjects waist circumference predominates. Thus, when examining the relationship between anthropometric variables and insulin resistance lean, overweight and obese subject groups should be examined separately. In studies where such groups are combined, the relationship between simple anthropometric measurements and insulin resistance will be influenced by the ratio of lean: overweight: obese individuals.

P55 Surveying size of neck circumference of higher standard and its relation with hyperglycemia in the patient suffering from coronary artery disease in the hospitals affiliated with Tehran city Universities of Medical Sciences in 2010 academic year

S NASROLLAH¹, SA JALAL MANESH², S MOHAMMAD ZADEH², M MAHMOODY³

¹Medical-Surgical Nursing Department, Faculty of Nursing and Midwifery, Islamic Azad University of Medical Sciences, Tehran Branch, Tehran, Iran; ²Faculty of Nursing and Midwifery, Islamic Azad University of Medical Sciences, Tehran Branch, Tehran, Iran; ³School of Health, Tehran University of Medical Science, Tehran, Iran

Introduction: The most prevalent coronary disease is coronary artery disease that is lead to death, disability and economic costs more than any other disease and prevalent of risk factors of this disease is increased rapidly worldwide. Hyperglycemia is one of the risk factors of this disease. General objective of this research is determining size of neck circumference of higher standard and its relation with Hyperglycemia in the patient suffering from coronary artery disease.

Methods: Present research is a descriptive-analytical study. 200 women and 200 men were selected by Poisson sampling method. Data were collected by an interview and documentation form in 2 parts: Demographics and clinical examination (fasting blood sugar, neck circumference). This form were filled out through interview with patients and measurement of the researcher.

Results: It revealed that 85% of men and 84/4% of women under study bear of higher standard neck circumference and there were a significant relation ($P < 0.05$) between the size of higher standard neck with fasting blood sugar (FBS) of patients (men and women) suffering from coronary artery disease. Also a significant relation ($P < 0.05$) were seen between those having a higher standard neck size with hyperglycemia in control of their individualized factors like age, job, education, records of higher blood sugar, consumption of blood sugar reducing pharmaceuticals, consumption of insulin, and blood sugar suffering duration.

Conclusion: With respect to the relationship between higher-standard neck and hyperglycemia in people with coronary artery disease, providing appropriate educational programs in this regard is suggested.

P56 Evaluation of sudomotor function as a screening tool for diabetes

B ONGPHIPHADHANAKUL¹, C NGAKUMOS¹, P TENGPRATTANAKOM¹, P BRUNSWICK², JH CALVET²

¹Ramathibodi Hospital, Bangkok, Thailand; ²Impeto Medical, Paris, France

Objective: Early detection may reduce the burden of diabetes and its complications. The aim of this study was to evaluate the utility in the screening of diabetes of EZSCAN[®], a new non-invasive device developed for a quick and quantitative evaluation of sudomotor function whose disturbance begins in prediabetes.

Methods: One hundred and twenty five Thai subjects at high risk of diabetes were involved in the study. Each subject underwent an oral glucose tolerance test. A repeated test was performed if the initial test showed either impaired glucose tolerance or diabetes. EZSCAN[®]

was performed in all subjects on the day of the initial oral glucose tolerance test. According to EZSCAN[®], subjects were classified as green = no disturbance, yellow = intermediate disturbance and orange-red = high disturbance). Cut-off point for diabetes was 2 h plasma glucose ≥ 200 mg/dL.

Results: Based on two positive tests 5 subjects were classified as diabetes. When using EZSCAN's orange-red group as the category for positive test, EZSCAN[®] had a sensitivity of 100% and a specificity of 43.3% to detect diabetes while they were 60% and 100% respectively for FPG. Of all the subjects whose EZSCAN[®] results were negative (green, $n = 52$), none had diabetes based on 2 positive oral glucose tolerance tests.

Conclusion: Assessment of sudomotor function by EZSCAN[®] appears to be a sensitive method to rule out diabetes or impaired glucose tolerance in asymptomatic subjects before performing more specific but less sensitive tests.

P57 Genetic polymorphisms of the visfatin gene and its correlation with different metabolic parameters in obese children

SQ OOI¹, RME CHAN², KS POH², SU GAN³, KO LEE¹, YS LEE²

¹Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore, Republic of Singapore;

²Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Republic of Singapore;

³Department of Surgery, Yong Loo Lin School of Medicine, National University of Singapore, Republic of Singapore

Visfatin is a novel adipocytokine which was reported to be predominantly secreted by visceral adipose tissues and had insulin-mimetic properties. Serum level of visfatin was reported to be associated with insulin resistance and obesity. Some studies revealed associations between variants of the visfatin gene and different metabolic parameters such as glucose and lipids. In this study, we aim to examine the role of visfatin gene variants in the pathophysiology of obesity in children. We genotyped the upstream promoter region, exon-intron boundaries and 11 exons of the visfatin gene in 24 DNA samples of local obese children through direct DNA sequencing. Two upstream variants -3187G>A and -1537C>T in perfect linkage disequilibrium were detected and the sequencing of the exons region of the visfatin gene also identified synonymous variants +7849T>C at exon 2 and +21426G>A at exon 7 respectively. Direct sequencing of specific regions of interest with these variants was then performed in 222 other obese paediatric subjects of the same study cohort. The upstream variants, -3187A/A and -1537T/T of minor allele frequency (MAF) of 0.451 were shown to correlate significantly with higher level of triglycerides. In addition, the variants at exon 2, +7849T>C (MAF = 0.033) and at exon 7, +21426G>A (MAF = 0.12) were also found to be associated with fasting glucose level and birth-weight respectively. The associations between the variants and metabolic parameters remained significant ($P < 0.05$) after adjusting for ethnicity. These findings indicate a possible contribution of visfatin gene variants in the development of co-morbidities and cardio-metabolic risk in childhood obesity.

P58 Exploring foot care education in diabetic patients in Chantanburi, Thailand

S PARBOTEEAH¹, T NAMWONG², L RAFTER³

¹De Montfort University, UK; ²De Montfort University, UK;

³Burton Hospitals NHS Trust, UK

There is a close relationship between foot care education in diabetic patients and the development of foot ulcers, amputations and related complications. The aim of this study was to explore what education diabetic patients received in the management of their feet and what advice and education practitioners provided. Data was collected from 15 patients, 5 educators and 5 practitioners using semi-structured interviews in a District Hospital in the Province of Chantanburi in Thailand. The findings indicate that only 36% of patients receiving hospital treatment for diabetes understood their conditions and that 93% were aware of the complications associated with the disease. Patients indicated that they had received foot care education. However, patients' reports suggest that patients did not take sufficient preventive action such as daily foot examinations in order to avoid foot complications. In appropriate foot care and foot wear were contributory factors in the development of foot complications. Both nurses and educators showed poor knowledge in the management of glycaemia, foot care behaviours, nutrition, referral to doctors, blood investigations, footwear, callus management, off loading and any assessments to find patients' needs.

In conclusion, although foot care education is given to diabetic patients, it is sporadic. A more systematic and organised system of foot care education should be developed supported by a robust audit system for monitoring quality. The findings from this study influenced the development of foot care guidelines using the Delphi Technique.

P59 Effect of therapeutic supplementation and life style intervention in the management of hypertension among smokers

R RANGANATHAN¹, R GUNALAN¹

¹Avinashilingam Deemed University for Women, Coimbatore, India

Hypertension is 21st century's pandemic. It is a commonly occurring disorder with a high degree of clinical, health and economic importance. Smoking is considered to be one of the main causative factors contributing to hypertension. The study was planned with an objective to assess the role of Oats, Green gram and selected herbs in controlling hypertension among smokers. One hundred and fifty smokers working in an industry were selected and their blood pressure, anthropometric measurements, their life style, habits, medical history and dietary intakes etc were obtained through an interview schedule. A subsample of 30 hypertensive smokers were selected for the two groups namely experimental and control group. A porridge consisting of 25 g of oats (*avena sativa*), 10 g of green gram (*vigna radiata*), and 2 g of Agathi (*sesbania grandiflora*), Mint (*mentha arvensis*), Tulsi (*ocimum sanctum*), Hibiscus (*rosa sinensis*), Curry leaves (*murraya koenigii*) and 3 g of jaggery were given to experimental group ($n = 15$) everyday for a period of 60 days. Along with the supplementation, the subjects were also given training in yoga and meditation. An educational package has been prepared to impart knowledge to the subjects about the importance of diet, physical activity, basic education on hypertension and its monitoring. Control group ($n = 15$) did not receive any supplement. Blood pressure was monitored before and after supplementation for both the groups and

the results show that there is a significant change ($P < 0.01$) in systolic and diastolic blood pressure on the selected subjects of experimental group after supplementation. Thus it can be concluded that the supplementation and lifestyle intervention had a significant impact on lowering blood pressure of hypertensive smokers.

P60 Modeling of liver glucose metabolism outgoing from positron emission tomography with physiologically interpreted model parameters

Z RAUSOVA¹, J CHRENOVA¹, P NUUTILA², P IOZZO³, L DEDIK¹

¹Faculty of Mechanical Engineering, Slovak University of Technology, Bratislava, Slovakia; ²Turku PET Centre, University of Turku, Turku, Finland; ³Institute of Clinical Physiology, National Research Council (CNR), Pisa, Italy

Aims: Our aims were to develop mathematical models, capable of evaluating mechanisms within the liver and/or the whole-body blood metabolism; to obtain novel information to the role of liver blood flow and the other significant physiologically interpreted parameters; to experimentally validate the constructed circulatory model using the data from a pig trial and to simulate measured plasma tracer concentration-time profiles of the individuals enrolled; to find differences in physiologically interpreted parameters between the two groups of pigs in a fasting state and in euglycemic supraphysiological hyperinsulinemia.

Materials and Methods: The group of pigs in a fasting state and the group of pigs with euglycemic supraphysiological hyperinsulinemia were scanned by positron emission tomography after a single dose of [18F] FDG tracer and at the same time frequent sampling was obtained in carotid artery, portal vein and hepatic vein. Structural mathematical models with physiologically interpreted parameters were used. A system-approach was used to the liver and/or the whole-body system by the tools of the linear dynamic system theory.

Results: Three kinds of structural models, single input and single output or multiple outputs and multiple inputs and single output, were verified. Differences between the group of fasting pigs and the group of pigs in euglycemic supraphysiological hyperinsulinemia were found from the view of the estimated parameters of the structural models.

Conclusion: Suitability of the structural mathematical models for the estimation of physiologically interpreted parameters from PET was validated.

P61 Effects of 4 year testosterone treatment on components of the metabolic syndrome

F SAAD^{1,2}, A. HAIDER³, LJ GOOREN⁴

¹Bayer Schering Pharma, Scientific Affairs Men's Healthcare;

²Gulf Medical University School of Medicine, Ajman, UAE;

³Private Urology Praxis, Bremerhaven, Germany;

⁴Endocrinology, VUmc, Amsterdam, The Netherlands

Background: Elderly men often show a concurrence of a decline of testosterone with features of the metabolic syndrome. This study tested the effects of normalization of testosterone.

Materials and methods: 136 hypogonadal men (38–83 years, mean 60.6 ± 8.0 years), with testosterone levels between 0.14–4.51 ng/

mL ($n > 4.90$ ng/mL) were treated with parenteral testosterone undecanoate for 4 years as the sole intervention.

Results: Plasma testosterone rose from 3.3 ± 1.9 ng/mL to 4.1 ± 1.5 ng/mL ($P < 0.01$) at 3 months, then stabilized at 6.8 ± 1.3 ng/mL after the first 6 months. There was a remarkable progressive linear decline of body weight, waist circumference, serum cholesterol, triglycerides, LDL-cholesterol and C-reactive protein over the 4 year period. Plasma glucose declined over the first 18 months. There was a significant decrease of levels of aspartate aminotransferase (AST) and alanine aminotransferase (ALT) over the first 24 months, then values leveled off. Both systolic and diastolic blood pressure decreased over the first 30 months. At baseline 52/136 met the criteria of the metabolic syndrome as defined by the National Cholesterol Education Program (2001); after 2 years of testosterone treatment this number had declined to 12/136.

Conclusion: With testosterone treatment over 4 years, the most significant improvement of the metabolic syndrome, including blood pressure, was noted over the first 24 months but over the following 24 months improvements were at least maintained or even further improvement was observed. Decreases in AST and ALT are likely to indicate improvement of liver steatosis.

P62 Visual statistical analysis on results of HbA1c as an effect of the diet bread consuming in Prilep, Macedonia

Z SAVOSKI¹, S SAVOSKA², S LOSKOVSKA³

¹General Hospital Prilep, Macedonia; ²Faculty of Administration and Management of Information Systems, UKLO Bitola, Macedonia; ³FEIT, UKIM Skopje, Macedonia

The aim of this study is to check how diet bread influence to people with diabetes of the level of HbA1c.

In the project were participated 80 randomly picked volunteers, from which 64 will consume diet bread and will measure level of the blood sugar, and 8 volunteers will just measure level of the blood sugar without consuming diet bread. The condition was: all volunteers to observe toward proposed directions for interim prescribed diet and use and receive therapy proposed by a doctor. The volunteers were do measure of the blood level sugar twice a week.

The volunteers were separated in two bigger groups – insulin dependent and non-dependent, but also in fifth groups by years. The results are statistical processed and visually presented. During the project, we have made an education about diabetes to all volunteers. The education goes individually during measure of blood sugar level and in groups during meetings. People exchange their experiences and tell their opinions for the quality and amount of the diet bread and about measured results of the blood sugar level. The average enhancement of HbA1c was 1.9%, in the volunteers who have made just measuring just 0.9%. The best results was gained from insulin non-dependent between 50–60 years–2.4% and the worst in children just 0.7%. As a conclusion at this moment we may say that consuming of diet bread decrease blood level sugar, but also a big influence in this have an education of people with diabetes.

P63 The effects of pre-hypertension and diabetic mellitus on myocardial infarction in Iranian adults: a population base study

K SAYEHMIRI¹, F AZIZ²

¹Ilam University of Medical Sciences, Ilam, Iran; ²Research Institute for Endocrine Sciences, Shahid Beheshti University (M.C), Tehran, Iran

Object: To investigate the association of pre-hypertension and diabetic mellitus with the risk of myocardial infarction (MI) in man and female 30 years and over.

Methods: In the TLGS cohort study included 5187 Iranian adults at Tehran city aged 30 to 90 years at baseline. The mean duration of follow up was 6.5 years. Analysis was done using Cox proportional hazard regression and accelerated failure time models.

Results: The TGLS cohort had 83 MI. The annually incidences of MI were 3.91/1000 for men and 1.58/1000 for women in the TGLS. Prevalence of pre-hypertension ($130 < \text{SBP} < 140$ or $80 < \text{DBP} < 80$) was 35.7%. The age and sex adjusted relative risk of MI in patients with pre-hypertension at baseline was 1.1 (95% CI: .6 to 2.1) times compared with normal group ($\text{SBP} < 130$, and $\text{DBP} < 80$) so pre-hypertension increase the risk of MI about 10%. The attribute risk fraction for population (AFP) for SBP and DBP was 31.4% and 14.3% respectively.

The age and sex adjusted relative risk of MI in patients with $\text{FBS} > 126$ at baseline was 5.4 (95% CI: 3.45 to 8.44) times compared with $\text{FBS} < 126$. Attribute risk fraction (AR) for exposed group ($\text{FBS} > 126$) was 85.4% and attribute risk fraction for population (AFP) was 37.1.

Conclusions: Pre-hypertension and diabetic mellitus remains as an important risk factor for MI in men and women aged 30 years and older.

P64 Esophageal dysmotility is frequent in obese patients with different stages of diabetes mellitus

JH SCHNEIDER, WV PETERSEN, M KUEPER, T MEILE, A KOENIGSRAINER

Department of General, Visceral, and Transplant Surgery, Germany

Background: Obesity is characterized by excess body fat. In the northern hemisphere the prevalence of overweight increased up to 34% and carries substantial co morbidities as diabetes mellitus (DM). Esophageal dysmotility (ED) is well known in morbid obese patients as well as in patients with DM. There are only a few studies which addressed the prevalence of ED in this patient.

Methods: In prospective study data of 10 healthy volunteers (group I) were compared with 30 morbid obese patients ($\text{BMI} > 40$) without DM in group II. In group III: 23 patients with short duration of DM (< 3 years) and in group VI: 31 patients with long extended time of DM ($7 < \text{years}$) were collected. In group V we measured 10 morbid obese DM patients with severe comorbidities. All participants underwent a standardized esophageal manometry, ambulatory 24 h pH-metry and a Multichannel Intraluminal Impedance (MII) investigation.

Results: In group II we measured significant more pathological sequences of the esophagus compared to all other groups ($P < 0.03$). The DeMeester Score showed in group II the highest pathological value of acid reflux ($P < 0.03$). Obese patients in group IV and V showed significant more acid and non-acid reflux episodes

compared to patients of group III ($P < 0.02$). In contradiction the amount of reflux episodes were significantly higher in the control group ($P < 0.0001$).

Conclusion: Our study confirmed different esophageal and gastric motility aberrations. Diminution masks some pathological findings of the esophagus. In morbid obese patients with DM the DeMeester Score is significantly increased in our series.

P65 Patients with different stages of morbid obesity and gastroesophageal reflux measured by intraluminal impedance

JH SCHNEIDER, WV PETERSEN, M KUEPER, T MEILE, A KOENIGSRAINER

Department of General, Visceral, and Transplant Surgery, Germany

Background: Obesity became one of the leading chronic diseases throughout the world. The relationship of obesity and gastroesophageal reflux disease (GERD) is incomplete understood. The purpose of the study was to evaluate gastroesophageal reflux in patients of different stages of obesity.

Methods: 51 obese patients were enrolled in this study. Additional 16 healthy volunteers were as controls in group I collected. All obese patients were divided into three subgroups according to their BMI. All the participants underwent esophageal manometry, gastroscopy and 24 h combined MII and 24 h pH-metry. The arrangement of several segments of neighbored impedance electrodes allows detecting a bolus presence at various levels and the direction of the bolus movement. Statistics were performed with the conventional computer assistant JMP program.

Results: The prevalence of GERD in morbidly obese patients was 47%. Compared to the control group I the mean of esophageal contraction amplitudes differed significantly in all patient groups ($P < 0.005$). The median LES was significantly decreased in all subgroups (II-IV) ($P < 0.001$). The DeMeester score of obese patients with GERD showed considerably significant higher values than the normal weighted control group ($P < 0.05$). The ratio between the frequencies of acid compared to non-acid reflux episodes were approximately 2:1 in the groups II-IV. The proximal migration level (15cm) of the acid reflux was in obese patients significantly higher than in the control group ($P < 0.05$).

Conclusion: Patients with morbid obesity to developed GERD. But GERD does not correlate directly with the degree of obesity.

P66 The effects of telmisartan on first-phase insulin secretion in vitro in db/db mice

J SHAO, P GU, H DU, B LU

Department of Endocrinology, Nanjing General Hospital of Nanjing Military Command, Nanjing, China

Objective: Several epidemiological studies suggested that treatment with angiotensin II type 1 receptor blocker provided a risk reduction of developing type 2 diabetes. Yet the mechanisms remain to be elucidated. The aim of present study was to explore the effects of telmisartan on first-phase insulin secretion of islets in vitro on db/db mice.

Methods: Eighteen db/misty mice, 8 weeks of age, were randomized to three groups as A, B, and C with 6 mice in each group. Twelve age-matched db/db mice were randomized to two groups as D and E. After islet isolation, islets of A~E group were incubated and per-

fused with medium adding blank, 100 nmol/L Ang II , 10 $\mu\text{mol/L}$ telmisartan +100 nmol/L Ang II , blank, and 10 $\mu\text{mol/L}$ telmisartan respectively. The islets were stimulated in the continuous presence of a high concentration of 16.7 mmol/L glucose. Samples were collected at multiple time points until 30 min after 16.7 mM glucose solution perfusion for insulin measurement.

Results: First-phase insulin secretion of db/misty was significantly impaired by AngII, with its peak only reached 4 times of basal level. While telmisartan beforehand improved its secretion to 7 times of basal level. First-phase insulin secretion of db/db was greatly diminished to a extent of lower than 3 $\mu\text{g/L}$, while telmisartan improved its secretion to 6 $\mu\text{g/L}$.

Conclusions: By blocking local RAS, Telmisartan intervention remarkably improved first-phase insulin secretion of islets in vitro on db/db mice, thus protected β -cell function. And this may contribute to the mechanisms of its anti-diabetic benefits.

P67 Dual energy X-ray absorptiometry assessment of bone mass, fat mass distribution in type 2 diabetes mellitus men

A SHEPELKEVICH¹, E PLETNEVA¹, V VADZIANAVA², N VASILIEVA²

¹Belarusian State Medical University, Minsk, Belarus; ²Republic Medical Rehabilitation and Balneotreatment Center, Minsk, Belarus

Background and aims: The central distribution of body fat has been identified as a significant risk factor for the development of cardiovascular disease. Determined parameters of metabolic syndrome and fat distribution are important for the prevention of macrovascular complications in type 2 diabetes mellitus (DM). Also several studies indicated that DM is a risk factor for certain types of osteoporotic fractures among adult people. The aim of the study: to assess BMD and features of fat mass distribution in men with type 2 DM in comparison with nondiabetic men.

Materials and methods: 47 men with type 2 DM and 17 controls were examined. The research involved DEXA with Body composition program.

Results: BMD (g/cm^2) was statistically lower in diabetic patients at femoral neck ($0,873 \pm 0,151$ vs $0,972 \pm 0,161$, $P < 0.02$) in comparison with controls. Fat mass distribution parameters in type 2 DM men were: Total Body $31,35 \pm 8,43\%$ vs $27,45 \pm 4,13\%$, $P < 0.05$; Android: $40,5 \pm 8,09\%$ vs $37,10 \pm 4,04\%$, $P < 0.05$; AG Ratio: $1,28 \pm 0,21$ vs $1,13 \pm 0,14$, $P < 0.05$; Trunk/Total: $0,63 \pm 0,09$ vs $0,57 \pm 0,04$, $P < 0.05$ in comparison with controls. (Arms + Legs)/Total parameter was higher in nondiabetic patients than in type 2 DM men ($0,72 \pm 0,18$ vs $0,54 \pm 0,21$, $P < 0.05$).

Conclusion: The results of study revealed the prevalence of central (android) distribution of body fat among men with type 2 DM in comparison with nondiabetic patients. The data confirmed bone loss manifestation in type 2 DM men (predominantly at femoral neck).

P68 Elevated expression and the function of FFAR2 in PBMCs from type 1 diabetic patients

G SHI^{1,2,3}, W GU^{1,2,3}, X ZHANG^{1,2,3}, G NING^{1,2,3}

¹Shanghai Institute of Endocrine and Metabolic Diseases; ²Department of Endocrine and Metabolic Diseases; ³Shanghai Clinical Center for Endocrine and Metabolic Diseases, Rui Jin Hospital, Shanghai Jiaotong University School of Medicine

Objective: FTo study the expression and the regulatory mechanism of FFAR2 in PBMCs from type 1 diabetic patients, and further study the function of FFAR2 in diabetic mouse model.

Methods: F‡@PBMCs from recent onset type 1 diabetic patients and healthy controls were collected, and the mRNA expression profiles were analyzed by microarray; ‡AHuman FFAR2 promoter region was cloned and the transcription activity were analyzed in macrophage cell line; ‡BThe regulatory effect of FFAR2 on LPS or PMA induced inflammation response and cell proliferation were analyzed; ‡CMulti low dose streptozocin induced diabetic mice were treated with FFAR2 agonist, Sodium acetate, and diabetic indexes were analyzed to investigate the protective effect of FFAR2 in this model.

Results: F‡@ The microarray result of PBMCs from 10 patients and 10 matched controls showed that FFAR2 mRNA increased by 4.9 fold; ‡AThe promoter region of FFAR2 (-2266 to +48) was cloned into pGL-luc plasmid; Our results showed that the promoter was activated by LPS and PMA stimulation in Raw264.7 macrophage cell line; ‡BActivation of FFAR2 by sodium acetate inhibits IL-6 mRNA expression induced by LPS in Raw264.7 3T3-L1 adipocyte; Further, Activation of FFAR2 by sodium acetate differently regulated cell proliferation in different cell lines, such as Raw264.7, THP-1 and MCF-7; ‡CSodium acetate treatment in MLDS diabetic mice significantly attenuated blood glucose and increased serum insulin compared with untreated group under feeding state; Blood glucose was also significantly lower after intraperitoneal glucose challenge or insulin injection.

P69 Changes in distribution of abdominal adipose tissue according to age in Korean men

KY SON, SJ KIM, HC CHOI, BL CHO

Department of Family Medicine, Seoul National University Hospital, Seoul, South Korea

Background: The distribution of visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT) is known to be related with age and body mass index (BMI). However, whether the changes in VAT and SAT distribution with BMI vary with age has not been studied.

Methods: We analyzed 6472 Korean men aged between 30 and 79 who underwent abdominal fat computed tomography (CT). We examined the distribution of VAT and SAT across BMI within the same age group using regression models, and compared the degrees of change in distribution patterns according to age groups using t-test.

Results: The VAT was positively associated with BMI increase in all age groups (all $P < 0.05$), and a greater degree of VAT change was observed with increasing age (30s, 10.9 ± 0.5 ; 40s, 12.4 ± 0.3 ; 50s, 13.4 ± 0.3 ; 60s, 14.2 ± 0.5 ; 70s, 16.1 ± 1.1 ; all $P < 0.05$). The SAT was positively associated with BMI increase in all age groups (all $P < 0.05$). The degree of increase in SAT decreased with age in age groups of 30s, 40s and 50s (30s, 18.5 ± 0.4 ; 40s, 15.3 ± 0.3 ; 50s, 13.3 ± 0.3 ; all $P < 0.05$), but remained the same afterwards (60s, 13.1 ± 0.4 ; 70s, 13.9 ± 0.8 ; $P > 0.05$).

Conclusions: The VAT and SAT are both positively associated with BMI, and the degrees of changes in the distribution of VAT and SAT

vary with age. The VAT increment with BMI consistently increases with age. The SAT increment decreases until the 50s and remains relatively constant afterwards.

P70 Waist to thigh ratio as a predictor of insulin resistance: a cross-sectional study of Korean women

KY SON², SJ KIM¹, JH PARK¹, B CHO¹

¹Department of Family Medicine, Seoul National University Hospital, Seoul, Korea; ²Center for Health Promotion, Seoul National University Hospital, Seoul, Korea

Background: Insulin resistance is the strongest predictor of non-insulin-dependent diabetes mellitus and visceral obesity is regarded as a major cause. The purpose of this investigation is to ascertain if waist to thigh ratio can be used as a reliable marker for insulin resistance.

Methods: The subjects of this cross sectional study were 95 women above 20 years old who visited a university hospital obesity center between December 2009 and June 2010. History taking and anthropometric measurements were conducted by a single trained physician. Insulin resistance is defined as HOMA-IR above 3.04.

Results: Median age of total participants was 37.43 ± 11.45 years. HOMA-IR showed a positive correlation with body weight, BMI, hypertension, waist circumference, waist to thigh ratio, triglyceride and LDL cholesterol while showing a negative correlation with HDL cholesterol by the Spearman's rank correlation analysis. A simple linear regression analysis showed a positive correlation between waist to thigh ratio and log-transformed HOMA-IR ($R^2:0.07$, $P < 0.01$). Waist to thigh ratio proved to be the most useful marker for the detection of insulin resistance showing AUC 0.70 ± 0.55 ($P < 0.005$) by the ROC curve when compared with other traditional index such as BMI, waist circumference and waist to hip ratio. The ROC curve demonstrated that the optimal waist to thigh ratio for discriminating insulin resistance was 1.46 (sensitivity: 80.0%, specificity: 51.4%) ($P < 0.001$).

Conclusion: There is a positive association between waist to thigh ratio and HOMA-IR. Waist to thigh ratio is a useful and reliable marker for the detection of insulin resistance.

P71 The effects of video game based virtual reality balance exercise on balance and functional ambulation activities in older adults with diabetic neuropathy

CH SONG, KJ LEE

Department of Physical Therapy, Sahmyook University, Seoul, Korea

This study investigated the effects of a video game based virtual reality balance exercise (VRBE) on balance and functional ambulation activities in older adults with diabetic neuropathy. 62 diabetic patients with signs and symptoms of peripheral neuropathy were enrolled, randomized and subdivided in two groups: a trained group of 32 diabetic participants (75.43 ± 7.21 years old), and a control group of 30 diabetic participants (74.87 ± 3.24 years old). The trained group practiced a VRBE, using video game (eye toys, Sony, Japan), for 60 min, two times a week for 8 weeks. Results were evaluated by both balance (postural sway path, Berg balance scale, functional reach) and functional ambulation activities (Timed Up and Go test, gait velocity). The results showed that postural sway path signif-

icantly decreased ($P < .05$), Berg balance scale, functional reach, improved significantly after VRBE ($P < .05$). Functional ambulation activities from timed up and go test, and 10m walking time improved significantly after VRBE ($P < .05$) In conclusion, the VRBE improved balance and functional ambulation activities. These results suggest that a VRBE is suitable for older adults with diabetic neuropathy.

P72 Prevention of obesity and hepatic insulin resistance by vagotomy

Q SU, C BAKER, M DEKKER, K ADELI

University of Toronto

Perturbations in lipid metabolism are intricately involved in the pathogenesis of obesity and type II diabetes. The gut-brain-liver neuronal axis via the vagus nerve is a two-way highway of communication between the central nervous system and peripheral tissues/organs that regulates many aspects of food intake and energy metabolism. Clinically, complete disruption of abdominal vagus nerve fibers has consistently abrogated weight gain or caused weight loss in the treated subjects. The present investigation sought to understand the molecular mechanisms underlying prevention of metabolic syndrome by vagotomy. Sub-diaphragmatic vagotomy of mice, in which both hepatic and gastric divisions of the vagal nerve were disrupted, led to significant decreases in both hepatic and plasma levels of triglyceride and apolipoprotein B compared to sham-surgery controls. In addition, the population of very low density lipoprotein particles was greatly reduced by vagotomy. By subjecting both vagotomized and sham mice to a high fat, high cholesterol (HFC) diet, we found that vagotomy protected mice against weight gain and hepatic insulin resistance induced by the HFC diet. Mechanistic studies revealed that mRNA levels of hepatic stearoyl CoA desaturase-1, which catalyzes the synthesis of oleyl CoA from stearoyl CoA, were dramatically decreased in the vagal-nerve-disrupted mice. Furthermore, increased secretion of the gut hormone, glucagon-like peptide-1, may contribute to maintenance of insulin sensitivity in vagotomized mice fed the HFC diet. These findings reveal a strong link between the vagal nervous system and gut hormones in maintaining metabolic homeostasis and preventing chronic disease induced by high-fat and/or high-carbohydrate diets.

P73 Study sexual dysfunction in women with diabetes and its impact on sexual satisfaction and their satisfaction with life

F TAIRI, A GHARANFOLY

Kurdistan University of Medical Science

Introduction: Diabetes epidemic or off, a major global health problem that its incidence during the past risen dramatically and further physical health, the impact on mental health. Diabetes in women with decreased libido, reaching orgasm or called orgasm, decreased sexual arousal, pain and infections near the vagina is associated with sexual side effects of diabetes disregarding the life of the individual in long-term marriage with serious risks facing the intimacy and comfort of man and woman is stripping and sexual satisfaction and life satisfaction affects women negative effects of this study to examine sexual dysfunction in women with diabetes and its impact on sexual satisfaction and their satisfaction with life in the city of Sanandaj deals.

Methods: This descriptive analysis of 100 cases of women with diabetes who were disposed to cooperate with the completed questionnaire to make based on DSM IV-R questionnaire marital satisfaction (ENRICH), and interviews, the information they collect and SPSS software were analyzed.

Results: The most common age adolescence (25 to 40 years) with a frequency of 60%, illiterate, 30%, housewives, 62% and 74% residing townspeople 60% of patients some degree of depression (mild, moderate, severe) have sexual dysfunction in studied women with decreased libido 57%, difficulty reaching orgasm (orgasm) 51%, 38% decreased sexual arousal, and pain is near 21%. between type 1 diabetes to depression and sexual dysfunction is a significant relationship between women with life satisfaction and sexual satisfaction are significantly related sexual dysfunction.

Conclusion: Diabetes in women with depression, sexual satisfaction and life satisfaction is their close relationship.

P74 Vietnamese diabetes self management program

T THAI

Western Region Health Centre, Victoria, Australia

Introduction: The Vietnamese Community has a low awareness of diabetes. Family support in managing diabetes is found to be paramount in the Vietnamese community. Verbal information is the preferred method of education as literacy levels are low in the elderly. The greatest barrier to the provision of diabetes services for this community is seen as language.

Aim: To provide information about Type 2 Diabetes; to increase knowledge of condition; to increase self management skills; to encourage lifestyle changes and improve an individual's health; to increase exercise tolerance; and to establish social links, support networks, and activity options in the local community.

Method: A 12 week program, comprising 1 h of group education, 30 min of discussion and review, and 30 min of exercise per week. The program is conducted by a Vietnamese Diabetes Nurse Educator (DNE) and other health professionals within the Community Health Centre. Each client receives a program outline, and a Type 2 Diabetes Education Booklet in Vietnamese edited by the DNE. The program is evaluated using the Flinders University Chronic Condition Self Management tools that include the Diabetes Risk Calculator and the Partner In Health (PIH) scale a Self Evaluation Questionnaire is also administered.

Results: Scores from the PIH scale and results of HbA1c have improved overall. The Type 2 Diabetes Education Booklet is useful and informative.

Conclusion: Learning as a group increased participants' knowledge of Type 2 diabetes, self management skills, and exercise tolerance. The program has encouraged lifestyle changes and improved individual's health; also establishing social links, support networks, and physical activity opportunities in local community.

P75 Gynostemma pentaphyllum extract improves insulin sensitivity in type 2 diabetic patients

HTT VU^{1,2,3}, PV DAO², T PHAM³, HK NGUYEN⁴, CG OSTENSON¹

¹Department of Molecular Medicine and Surgery, Karolinska Institutet, Stockholm, Sweden; ²Department of Internal Medicine, Hanoi Medical University, Hanoi, Vietnam; ³Department of Endocrinology and Diabetes, National Institute of Gerontology, Hanoi, Vietnam; ⁴Department of Internal Medicine, University of Manitoba, Winnipeg, Manitoba, Canada

Aims: To evaluate the effect of the traditional Vietnamese herb *Gynostemma pentaphyllum* (GP) extract on insulin sensitivity in drug-naïve type 2 diabetic patients.

Methods: Sixteen patients completed the randomized, double-blind, placebo-controlled crossover clinical trial. Patients received GP or placebo extract 6 g daily for 4 weeks and vice versa with a 2 week washout period. At the end of each period, a Somatostatin-Insulin-Glucose Infusion Test (SIGIT) was performed. Fasting plasma glucose (FPG), HbA1C, oral glucose tolerance tests and insulin levels were measured before, during and after the treatment.

Results: FPG and steady-state plasma glucose (SIGIT mean) were lower after GP treatment compared to placebo treatment ($P < 0.001$). The levels of FPG in the control group were slightly reduced 0.2 ± 1.5 vs. 1.9 ± 1.0 mmol/L in GP group ($P < 0.001$) and the effect on FPG was reversed after exchanging treatment. The glycometabolic improvements were achieved without any major change of circulating insulin levels. There were no changes in lipids, body measurements, blood pressure and no reported hypoglycemia, or acute adverse effects regarding kidney and liver parameters.

Conclusion: The results of this study clearly demonstrated that the GP extract exerted anti-diabetic effect by improving insulin sensitivity. The safety of GP extract was again proved clinically in the trial. This study is registered at ClinicalTrials.gov with ID: NCT01254084.

P76 IL-6 induces mitochondrial biogenesis in rodent white adipose tissue

Z WAN¹, C CHAN¹, D WRIGHT²

¹Alberta Diabetes Institute, University of Alberta, Edmonton, Canada; ²Department of Human Health and Nutritional Sciences, University of Guelph, Guelph, Canada

Thiazolidinediones (TZDs) are a commonly prescribed class of anti-diabetic medications that appear to mediate their beneficial effects, at least in part, through the induction of adipose tissue mitochondrial biogenesis. Owing to the deleterious side effects of TZDs, the identification of alternative approaches to induce adipose tissue mitochondrial content is needed. It has been demonstrated that exercise induces adipose tissue mitochondrial biogenesis, however the hormonal factors for mediating these processes remain unidentified. Interleukin 6 (IL-6) is markedly enhanced during exercise. Thus, we hypothesized that IL-6 secreted from adipose tissue during exercise will increase mitochondrial biogenesis in white adipose tissue. An acute bout of exercise robustly increased the phosphorylation of signal transducer and activator of transcription 3 (STAT3), a signaling intermediate activated by IL-6 in adipose tissue. Similarly, exercise increased the mRNA expression of suppressor of cytokine signaling 3

(SOCS-3) in adipose tissue, a transcriptional target of IL-6. Treatment of culture adipose tissue with IL-6 (75, 150 ng/mL) for 6 h led to approximately 2 and 3 fold increases in mRNA expression of peroxisome proliferator activated receptor co-activator 1- α (PGC-1 α) respectively, a master regulator of mitochondrial biogenesis. To assess more directly the effects of IL-6 on adipose tissue mitochondria biogenesis, markers of mitochondrial biogenesis were measured in white adipose tissue from IL-6 knockout (IL-6^{-/-}) mice. Citrate synthase activity and the protein content of succinate-ubiquinone oxidoreductase (SUO), cytochrome c oxidase core I subunit (CORE1) and heat shock protein-60 (HSP60) were reduced from IL-6^{-/-} mice. In conclusion, exercise induced adipose tissue mitochondrial biogenesis may be regulated by IL-6.

P77 Serum total cholesterol is independently, inversely associated mortality risk in very old hospitalized patients

A WEISS¹, Y BELOOSESKY¹, MM BOAZ^{1,2}

¹Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel;

²Department of Nutrition, School of Health Sciences, Ariel University Center, Ariel, Israel

Background: In a previous report, we showed that BMI was significantly, inversely associated with risk of death. This inverse association between BMI and mortality may represent a protective metabolic “reserve” during periods of stress. Total cholesterol has been identified as a measure of nutrition and is inversely associated with mortality in hemodialysis subjects. We therefore examined whether increased total cholesterol reduced mortality risk in very old hospitalized patients.

Methods: A total of 477 inpatients (226 males), mean age of 81.5 ± 7 years, hospitalized in an acute geriatric ward between 1999 and 2000 were included in the study. Serum total cholesterol was measured on admission day in the framework of usual care. Patients were followed until August 31, 2004. Mortality data were extracted from death certificates.

Results: During a follow-up of 3.47 ± 1.87 years, 248 patients died. Those who died had significantly lower baseline serum total cholesterol than those who survived (182.5 ± 45.8 vs. 201.9 ± 39.6 mg/dL, $P = 0.005$). Serum total cholesterol was significantly, inversely associated with all cause mortality even after controlling for age, sex, diabetes, renal failure and BMI (HR 0.996, 95% CI 0.993–0.999, $P = 0.009$), indicating that each 1 mg/dL increase in serum total cholesterol was associated with a 0.04% decrease in risk of death. HR estimates for serum total cholesterol were unchanged when the analysis was restricted to the subset of patients ($n = 435$) who survived for at least 6 months.

Conclusions: In very elderly subjects, increased serum total cholesterol was associated with reduced mortality risk.

P78 The role of SIK1 in diabetes with hypertension

X WEN, Q LIAO, W XU, J YU, K LU

Liyuan Hospital, Tongji Medical College, Huazhong University of Science and Technology

Objectives: Diabetes usually accompany with hypertension, which is relevant with the enhanced sodium reabsorption in renal tubular. Newly discovered salt-induced kinase 1 (SIK1) not only involved in

glucose and lipid metabolism, but also activated Na^+ , K^+ -ATPase activity through signaling pathways, leading to high blood pressure. SIK1 activity was significantly elevated in renal proximal tubule cells from Milan hypertensive rats. However, whether SIK1 is expressed in the kidney of diabetic rats has not evaluated yet. This study investigates the abundance of the renal SIK1 and Na^+ , K^+ -ATPase $\alpha 1$ mRNA and protein, as well as the activity of Na^+ , K^+ -ATPase in experimental diabetic rats, and also analyzes the role of SIK1 in diabetes with hypertension.

Methods: Male Wistar rats were randomly divided into three groups: normal group, type 1 diabetic (DM1) group, and type 2 diabetic (DM2) group ($n = 12$ in each group). Rats in normal and DM1 groups were fed regular chow, and rats in DM2 group fed high-fat diet. After 4 weeks, rats received STZ of 60 mg/kg and 30 mg/kg body weight intraperitoneally in DM1 and DM2 group respectively. Metabolic parameters and renal function were measured. Tail arterial blood pressure was checked. Kidney stained with HE and PAS were examined by light microscope. The level of mRNA and protein expression of SIK1 and Na^+ , K^+ -ATPase $\alpha 1$ in renal tissue were detected by RT-PCR and Western blot. Meanwhile Na^+ , K^+ -ATPase activity were measured.

Results: Compared with normal group, fasting blood glucose, insulin, total cholesterol and triglycerides were increased markedly ($P < 0.01$). Serum creatinine, urea nitrogen, and urine albumin were significantly increased in the rats of two model groups ($P < 0.01$). Insulin sensitivity index decreased significantly in the diabetic rats ($P < 0.01$). Blood pressure in two model groups was significantly higher than normal ($P < 0.01$). Light microscopic examination showed markedly increased glomerular area and mesangial region, thickened glomerular basement membrane, swollen renal tubular epithelial cells, narrowed lumina in two model groups. The expression levels of SIK1 and Na^+ , K^+ -ATPase $\alpha 1$ mRNA and protein were significantly increased in diabetic rats ($P < 0.01$). Na^+ , K^+ -ATPase activity was significantly increased in two model groups compared with normal group ($P < 0.01$). All of the above results between the two model groups was not significant different.

Conclusion: SIK1 mRNA expression and protein level increased in DM1 and DM2 rats. At the same time, mRNA and protein of Na^+ , K^+ -ATPase $\alpha 1$ were up-regulated in both DM1 and DM2 rats. Na^+ , K^+ -ATPase was over-activated. Rats in both model groups showed a characteristic pathological changes of diabetic nephropathy and hypertension. SIK1 itself or via regulating Na^+ , K^+ -ATPase involved in the process of diabetic nephropathy accompanied with hypertension in DM1 and DM2 rat. This work was supported by National Natural Science Foundation of China (No.30672730).

P79 Trigonella foenum graecum seed extract protects against functional and morphological abnormalities in kidneys of diabetic rats via its antioxidant activity

W XUE

Department of Public Health, Xi'an Jiaotong University School of Medicine

Oxidative stress is involved in the development and progression of diabetic nephropathy (DN). Because Trigonella foenum graecum has been reported to have antidiabetic and anti-oxidative effects, we hypothesized that Trigonella foenum graecum seeds aqueous extract (TE) restores kidney injuries of diabetic rats via its antioxidant activity. Rats were fed diets enriched with sucrose (50%, w/w), lard (30%, w/w) and cholesterol (2.5%, w/w) for 8 weeks to induce insulin resistance. After a DN model was induced by streptozotocin, the rats were administered a low (440 mg/kg), medium (870 mg/

kg) or high (1740 mg/kg) dose of TE by oral intragastric intubation for 6 weeks. In TE-treated DN rats, blood glucose, kidney/body weight ratio, serum creatinine, blood urea nitrogen, 24 h content of urinary protein and creatinine clearance were significantly decreased compared to non-treated DN rats. Diabetic rats showed decreased activities of superoxide dismutase and catalase, increased concentrations of malondialdehyde in the serum and kidney, and increased levels of 8-hydroxy-2'-deoxyguanosine in urine and renal cortex DNA. Treatment with TE restored the altered parameters in a dose-dependent manner. Furthermore, all the ultramorphological abnormalities in the kidney of diabetic rats, including the uneven thickening of the glomerular base membrane, were markedly ameliorated by TE treatment. We conclude that TE confers protection against functional and morphological injuries in kidneys of diabetic rats by increasing activities of antioxidants and inhibiting accumulation of oxidized DNA in the kidney, suggesting a potential drug for the prevention and therapy of DN.

P80 A study of % body fat and other health related variables due to exercise & drinking habits on pre & post-menopause of female

JH YOO

Sahmyook University, Seoul, Korea

Lack of physical activity has been shown to play a major role in gaining body fat. Conversely, regular exercise is an important factor in promoting the loss of body fat. Most world population consume alcoholic beverages. However, alcohol may have both protective and harmful effects on health. The purpose of this study was to examine the comparison of % body fat and other health related variables due to exercise & drinking habits on pre and post-menopause of female. Using a cross-sectional approach, we studied 508 women (respectively, pre menopausal 215, post menopausal 293). Subjects were divided into 3 groups depended on exercise habit (sedentary, exercise less than twice a week and more than three time a week) also, 2 groups depended on drinking habit (not drink and drink less than twice a week), respectively. We measured % body fat and other health related fitness included bone mineral density. Measured other health related physical fitness include % of body fat, maximum oxygen consumption, grip strength, sit & reach, reaction time and closed one leg stand. In pre-menopause, exclude sit & reach, physical fitness and bone mineral density showed no significant difference among the exercise habits. Also, comparing with the non-drinkers, the drinkers had no significant differences in bone mineral density and physical fitness levels. In post-menopause, % of body fat and bone mineral density showed significant differences among the exercise habits. Also, bone mineral density of drinkers showed a higher tendency than non-drinkers, but physical fitness had no significant differences between the groups.

P81 Comparison of elderly diabetic lifestyle in Sanandaj with standards

M ZAREI, F BIDAPOOR, F GHARIBI

Kurdistan University of Medical Science, Sanandaj, Iran

Background: This study compared lifestyle of diabetic elderly patients with standard lifestyles.

Methods: This cross-sectional study of 250 elderly diabetic that was chosen performed by cluster sampling method. Information based on questionnaires.

Results: Results showed that the average age in the diabetic elderly patients was 66 years. In the study population, 138 patients (55/2%) were female and 62 patients (44/8%) were men, none of them has standard precision food consumption (75/5 percent lower than standards AND 24/5 percent more than standards) AND 31/2 percent of them had a good exercise (78/2 percent was walking exercise and 1.28 percent were cycling.) 87 patients (34/8%) was Glucose control according to their program. only 20 patients (8%) of regular blood glucose control had done.

Conclusion: This study showed that the quality of life for elderly people with diabetes who living in the Sanandaj City in comparison with appropriate standards is inconsistent and we have been plan to diabetes control, especially in countries where aging populations will increase in future.

P82 **Alternative therapy of arterial hypertension with prestarium in old patients with diabetes mellitus, type II and nephropathy (polymorbidity syndrome)**

R ZASLAVSKAYA, SV SERGEEV
Hospital N60, Russia

Aim: To study different approaches to treatment with prestarium (Servie, France) of old pts with arterial hypertension (AH) together with polymorbidity syndrome (PS).

Material and methods: 60 pts (mean age – 73 years old) with AH together with diabetes mellitus, type II, adipositas, nephropathy, dislipidemia, were divided into three groups with 20 pts in each. The 1st group received prestarium (P) (tert-butylamine salt) in a dose of 4 mg twice a day. The second group received prestarium A (PA) (arginin salt) in a dose of 5 mg once a day, in the chronotherapy (CT) regimen (4 h before BP increased by BP-monitoring data with taking into account pharmacokinetics). The 3-rd group obtained PA in the morning and melaxen (melatonin, Unipharm, USA) in a dose of 3 mg at 22.00. Before and after all types of therapy during 21 days pts were investigated by clinic-laboratory examination, ECG, BP-monitoring, EchoCG.
Results: All methods of therapy produced antihypertensive effect (on the 4 day) statistically significant. But circadian profile changed better in (CT) with PA and with therapy of PA together with melaxen. Daily and course doses of PA in regimen CT were smaller, than of prestarium (tert-butylamine salt). Circadian profile of BP in pts with non-dipper transferred in dipper. The same data was in therapy with combination PA together with melaxen. Circadian organization of BP rhythm normalized. Traditional therapy with prestarium (tert butylamine salt) did not make this effect. Levels of glucose, insulin, creatinin, urea in blood did not changed.

Conclusion: Treatment with prestarium A in chronotherapy regimen and this drug with melaxen in old pts with AH and polymorbidity syndrome is more effective than traditional therapy with prestarium (tert butylamine salt).

P83 **Association of CIDEA and CIDEB gene with obesity among Han Chinese**

L ZHANG, J WU, J ZHANG, Y DAI, L BIAN,
W WANG

Department of Epidemiology and Biostatistics, School of Public Health and Family Medicine, Capital Medical University, Beijing, China

Objective: To assess the association of the SNPs of CIDEA and CIDEB gene and the haplotype structure of CIDEA gene with obesity.

Material and methods: A sample of 347 subjects was included in a case-control study for genotyping. Blood samples of subjects and anthropometric measurements were collected. SPSS 13.0, Haploview 4.0 and Multifactor Dimensionality Reduction (MDR) software were used for statistical analysis.

Results: The rs4796955 (G/T) and rs8092502 (C/T) polymorphisms in CIDEA gene were associated with obesity [odds ratio (OR), 1.640; 95% confidence interval (95%CI), 1.206–2.232.829; and OR, 0.971; 95%CI, 0.666–1.415, respectively]. There was no significant difference in the allelic and genotypic frequencies of the rs34740317, rs1053648 and rs3742509 polymorphisms in CIDEB gene between the two groups. Haplotype GTTG and TTTG in CIDEA gene were significant different between obesity and normal groups [OR, 1.612; 95%CI, 1.017–2.555.829; and OR, 0.478; 95%CI, 0.241–0.946, respectively]. By MDR analysis, the best model was a four-locus site model composed of SNPs rs45619832, rs4796955, rs8092502, and rs12962340 in the CIDEA gene.

Conclusion: No significant result of CIDEB gene was obtained in our study. The CIDEA genotypes were associated with obesity in Chinese Han Population. G allele of rs4796955 and T allele of rs8092502 were a risk factor for obesity. The strong interaction between rs45619832, rs4796955, rs8092502, and rs12962340 could increase the risk of obesity significantly. The multiplicative effect of the CIDEA genotype on obesity should be taken more attention in further researches.