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Obesity, Metabolic syndrome, Diabetes

Cod: W210

HIGH SENSITIVITY C-REACTIVE PROTEIN AS A PREDICTOR OF DEVELOPMENT OF ABNORMAL TOLERANCE GLUCOSE IN WOMEN WITH PREVIOUS GESTATIONAL DIABETES MELLITUS

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Background
Gestational diabetes mellitus (GDM) is the most common metabolic disorder in pregnant women and a major cause of perinatal, neonatal and maternal morbidity. It is associated with life-long increased risk of type 2 diabetes mellitus (DM). Previous studies have shown that inflammation plays a role in the development of GDM and type 2 DM. We investigated the usefulness of antenatal high-sensitivity C-reactive protein (hsCRP) as a short-time predictor of postpartum abnormal tolerance glucose (ATG), including impaired fasting glucose (IFG) and/or impaired glucose tolerance (IGT) and DM, in women with previous GDM.
Methods
A total of 57 women (mean age: 35 years (SD:5) were evaluated 8-12 weeks after a GDM pregnancy. A 75-g oral glucose tolerance test (OGTT) was performed, according to the recommendations of Diabetes and Pregnancy Spanish Group (GEDE). Age, prepregnancy body mass index (BMI), family history of type 2 DM and fasting glucose value in the 100-g OGTT were recorded. For hsCRP measurement, a fasting sample was frozen and stored at -80ºC until tested. Multivariate logistic regression analysis was used to determine independent predictors of subsequent ATG.
Results
According to ADA criteria, 39 (68.4%) women were normal, 15 (26.3%) had IFG and/or IGT and 3 (5.3%) had diabetes. Only prepregnancy BMI (29.5 kg/m2 (7.9) vs. 23.3 kg/m2 (5.8); p=0.006) and fasting glucose level (94 mg/dL (17) vs. 82 mg/dL (7); p<0.001) differed significantly in women with subsequent ATG. No difference was observed for hsCRP (0.80 mg/dL (0.84) vs. 0.47 mg/dL (0.82); p=0.135). In multivariate analysis independent predictors of postpartum ATG were prepregnancy BMI (OR: 1.191 (CI 95%: 1.050-1.352) and fasting glucose (CI 95%: 1.036-1.210).
For fasting glucose, ROC AUC was 0,731 (CI 95%: 0,598-0,840; p=0,004) with an optimal cutoff of 91 mg/dL (sensitivity: 50% (CI 95%: 26-74), specificity: 94.5% (CI 95% 82.7-99.4), negative predictive value: 80.4% (CI 95%: 66.1-90.6) and positive predictive value: 81.8% (CI95%: 48.2-97.7).
Conclusion
In our study cohort, hsCRP was not a short-time predictor for the development of ATG in women with prior GDM. Fasting glucose in 100-g OGTT was a independent predictor and it could be a helpful tool to identify women with an increased risk of subsequent ATG.

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Obesity, Metabolic syndrome, Diabetes

Cod: W211

FIRST TRIMESTER FASTING SERUM GLUCOSE AS A PREDICTOR FOR THE DEVELOPMENT OF GESTATIONAL DIABETES MELLITUS

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Background
Gestational diabetes mellitus (GDM) is the most common metabolic disorder in pregnant women and a major cause of perinatal, neonatal and maternal morbidity. Early detection of women at higher risk for GDM early is desirable, because interventions such as diet or exercise may be applied earlier in pregnancy and can reduce later development of GDM or its associated morbidities. The aim of this study was to evaluate the utility of first trimester fasting serum glucose (FSG) as a screening test for GDM, in comparison to other traditional risk factors, such as pregestational body mass index (BMI), maternal age or previous history of GDM.
Methods
We conducted a retrospective study including pregnant women screened for GDM in our laboratory between January and April 2014, according to the recommendations of the Spanish Group for Diabetes and Pregnancy. Only subjects with a singleton pregnancy and a recorded first trimester FSG were studied. Exclusion criteria were: loss to follow-up and non-compliance of protocol for GDM diagnosis.
The performance of first trimester FSG was calculated using receiver operator characteristic (ROC) curves.
Results
A total of 675 women (median age: 31 years (interquartile range (IQR): 7), range: 14-44 years; median BMI: 24 kg/m2 (IQR: 16-44), range: 16-44 kg/m2; gestational age at FSG: 10 weeks (IQR: 3), range: 2-13 weeks) were included. GDM was diagnosed in 20 women (3%). Differences between both groups (GDM vs. non-GDM) were not observed for FSG (85 mg/dL (11) vs 83 mg/dL (10); p=0.363), maternal age (32 years (8) vs 29.4 years (7), p=0.820) and BMI (25.5 kg/m2 vs. 24 kg/m2 (5); p=0.355). Ocurrence of previous history of GDM or prediabetes was significantly higher in GDM group (5 (5%) vs 23 (3.5%); p<0.001).
Multivariate logistic regression analysis (including FSG, BMI, maternal age, previous history of GDM or prediabetes and family history of DM) revealed that only previous history of GDM or prediabetes was a significant and independent risk factor for later development of GDM (OR: 7.526 (CI95%: 2.387-23.734; p: 0.001)
Conclusion
In our study cohort, FSG, measured in the first trimester of gestation, was not useful for the prediction of development of GDM.

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Obesity, Metabolic syndrome, Diabetes

Cod: W212

IMPLEMENTING THE RISK OF OVARIAN MALIGNANCY ALGORITHM ADDING OBESITY AS A PREDICTOR FACTOR

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Diet related factors such as a high content of starch and fat have been shown to be associated to the increase of ovarian carcinoma risk. Tumor markers CA125 and HE4 are currently incorporated into the "Risk of Ovarian Malignancy Algorithm" (ROMA) with menopausal status for discerning malignant from benign pelvic masses. Aim of this study was to evaluate whether obesity as a disease itself could represent a risk factor for the onset of Epithelial Ovarian Cancer (EOC).
One hundred and sixty-three patients from the Obesity Center with a body mass index (BMI) >30 kg/m (Group 1) and 130 women with a BMI of <25 kg / m² (Group 2) where included in the study. All women underwent abdominal and transvaginal ultrasound (TVUS) with color Doppler to exclude ovarian masses.
ROMA score above the cut-off (>13%) was detected in 24.5% (40/163) of obese woman (Group 1). Whereas in the normal-weight women group a high ROMA score was identified only in 5.3% (7/130) of the women (Group 2). During the study, 13 out of 40 Group 1 patients with ROMA >13 were deemed eligible for bariatric surgery. After bariatric surgery and decrease of BMI, 8 out of 13 obese women showed the ROMA index below 13.
This study suggests that obesity in premenopausal is a risk factor for ovarian cancer onset. Our results propose the possible function of ROMA score as a simple, non-invasive test able to screen obese women at risk of developing an ovarian cancer .

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Obesity, Metabolic syndrome, Diabetes

Cod: W213

COMPARISON BETWEEN HbA1c ANALYZED USING CAPILLARY ELECTROPHORESIS, HPLC, IMMUNOLOGICAL AND ENZYMATIC METHODS

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BACKGROUND
Hemoglobin A1c (HbA1c) is an important blood test for the diagnosis and monitoring of diabetes mellitus patients. The aim of this study was to evaluate the agreement between different HbA1c methods in use in Sweden.
METHODS
We used blood samples to compare HbA1c results analyzed with Capillarys 3 Tera, Roche Tina-Quant HbA1c Gen 3, BioRad Variant II Turbo (3 sites), Mono S® and Abbott Architect enzymatic method. The comparisons were made as paired instrument comparisons with Capillarys 3 Tera.
RESULTS
The linear correlations between the HbA1c methods were as follows: Cobas 6000 = 0.982 x Capillarys 3 Tera + 0.975, R^2 = 0.994; Architect c8000 = 0.982 x Capillarys 3 Tera + 1.064, R^2 = 0.994; Mono S® = 0.916 x Capillarys 3 Tera + 3.397, R^2 = 0.965; BioRad Variant II Turbo, Site 1 = 0.953 x Capillarys 3 Tera + 3.464, R^2 = 0.988; BioRad Variant II Turbo, Site 2 = 0.923 x Capillarys 3 Tera + 4.062, R^2 = 0.990; BioRad Variant II Turbo, Site 3 = 0.928 x Capillarys 3 Tera + 5.076, R^2 = 0.992; Tosoh G8 = 0.963 x Capillarys 3 Tera + 3.895, R^2 = 0.996.
CONCLUSIONS
The different instrument platforms showed the best agreement in the 50-70 mmol/mol interval. Above and below this range the methods separated into 2 groups, one consisting of Capillarys 3 Tera, Roche Tina-Quant and Abbott enzymatic method and the other group consisting of the ion exchange chromatography methods BioRad Variant II Turbo, Tosoh G8 and Mono S®. The results from the latter showed a larger intercept in the linear regression on results from Capillarys 3 Tera.

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Obesity, Metabolic syndrome, Diabetes

Cod: W214

COMPARISON OF HbA1c CONCENTRATIONS MEASURED ON CAPILLARYS 2 FLEX PIERCING® AND COBAS 6000® SYSTEMS

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BACKGROUND: Monitoring of HbA1c concentration is inevitable in efficient and safe management of diabetic patients. Routine measurement methods differ regarding analytical characteristics and performance. The study compared concordance of concentrations measured using capillary electrophoresis on CAPILLARYS 2 FLEX PIERCING® and turbidimetric inhibition immunoassay on COBAS 6000®.
METHODS: Blood samples, with EDTA as anticoagulant, had been collected from 60 patients. HbA1c concentration was measured within 24 hours from sampling, simultaneously on both analyzers, according to manufacturer's instructions. Statistical evaluation included Bland-Altman and Passing-Bablok analyses, performed using MedCalc® software.
RESULTS: Concentrations measured on CAPILLARYS 2 FLEX PIERCING® were between 4.5 and 11.2% (26 and 99 mmol/mol), while on COBAS 6000® they ranged in 4.5-11.3% (26 and 100 mmol/mol). Estimated mean difference (95% confidence interval (CI)) was 0.03 (-0.29-0.35) % for all samples. In samples with HbA1c<6% difference was -0.02 (-0.32-0.29) % and in those above this cut-off 0.06 (-0.27-0.39) %. Passing-Bablok analysis on the whole group showed intercept (95% CI) of -0.050 (-0.050-0.271) with slope (95% CI) of 1.000 (0.952-1.000). For samples with HbA1c<6% analogous values were 0.001 (-0.001-1.100) and 1.000 (0.800-1.000), while for those above this concentration exceeded -0.100 (-0.365-0.345) and 1.000 (0.950-1.039).
CONCLUSION: Presented results indicate acceptable concordance between the results of HbA1c determination on CAPILLARYS 2 FLEX PIERCING® and COBAS 6000® systems. However, these preliminary results should be further evaluated in larger studies, with special emphasis on samples containing haemoglobin variants or derivates and endogenous interfering substances.

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Obesity, Metabolic syndrome, Diabetes

Cod: W215

DIAGNOSTIC VALUE OF SERUM BILIRUBIN LEVELS IN PREDIABETES AND NEWLY DISCOVERED DIABETES-GENDER DIFFERENCES

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BACKGROUND:
Low serum bilirubin levels so far have been associated with increased risk for diabetes,cardiovascular and renal diseases. At the same time, higher serum bilirubin is reported to provide protection against metabolic syndrome, and to be negatively associated with overweight and obesity.
This study analyzed possible gender differences in concentration of bilirubin in prediabetic and diabetic patients and correlated them with the levels of glucose and glycosylated hemoglobin in order to establish possible role of bilirubin in progress of the disease.

MATHERIALS AND METHODS:
98 newly registered type 2 DM patients(60 woman and 38 man), 31 prediabetic patient and 96 healthy controls(59 woman, 39 man) with no evidence of hepatitis B or C viral infection or active liver or kidney damage were recruited at The Clinical Center University of Sarajevo and General Hospital Tešanj,Bosnia and Herzegovina.Adequate classification of patients was made by clinician according to WHO criteria and criteria of European Diabetes Association.Standard IFCC protocols were used for the analysis od glucose, bilirubin and glycosylated hemoglobin.SPSS for Windows was used for the statistical analysis of results.

RESULTS:
In our study, serum level of bilirubin was significantly lower in both prediabetic and diabetic patients in comparison to healthy population.Bilirubin concentration strongly correlated with levels of glucose in all T2DM patients, male prediabetic patients and prediabetic patients older then 50 years.The correlation between hemoglobin A1c and bilirubin was not evident at any level.
CONCLUSION:
Our results point out the importance of measurement of serum bilirubin concentration in both prediabetes and diabetes stage of the disease, especially within male population.However, further clinical studies on the role of bilirubin in the disease prevention and treatment will be required in the future.

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Obesity, Metabolic syndrome, Diabetes

Cod: W216

URINE ALBUMIN/CREATININE RATIO IN PERSONS WITH VISCERAL TYPE OF FAT DISTRIBUTION

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Background: Examine the level of urinary albumin/creatinine (A/C) ratio, as a marker of cardiovascular risk, in patients with a body mass index (BMI) of less than 30 kg/m^2 and visceral type of fat distribution (VFD).Methods: Subjects with a BMI<30 kg/m^2 were divided based on waist circumference: VFD group (49 male and 6 female, mean age 45.8±8.9), and non-VFD group (55 male and 9 female, mean age 43.8 ± 9.9). Levels of albumin and creatinine in the first morning urine, and serum concentrations of nitrogen compounds, glucose, aminotransferase, γ-GT and the lipid parameters were determined by standard biochemical methods.
Results: Ratio A/C is pathologic (>3 mg/mmol) in 12.5% of subjects with VFD and 4.6% without VFD (p = 0.009). In patients with VFD A/C ratio is significantly higher (0.58 (0.34 to 1.54) vs. 0.39 (0.26 to 0.68) mg/mmol; p=0.002) such as a serum uric acid (280.4±78.7 vs. 240.5±72,8 μmol/l; p<0.001), cholesterol (6.00±1.07 vs. 5.65±1.12 mmol/l, p=0.032), triglycerides (1.8 (1.15 to 2.5) vs. 1.21 (0.8 to 1.94) mmol/l; p<0.001), AST (32 (28-37) vs . 28 (24-35) U/l, p<0.01), ALT (31 (25-45) vs. 25 (19-32) U/l, p<0.01), BMI (28.3±1.3 vs. 25.2±2.6 kg/m^2, p<0.001), systolic (141.1±18.1 vs. 130.6±17.4 mmHg, p<0.01) and diastolic blood pressure (91.9±12.4 vs. 85.1±11.4 mmHg, p<0.01), while the level of HDL-cholesterol significantly lower (1.12±0.25 vs. 1.2±0.29 mmol/l, p=0.047). In multivariate regression analysis, the most important predictor of A/C was systolic blood pressure.
Conclusions: In subjects with a BMI<30 kg/m^2 and VFD we found significantly higher levels of urinary A/C ratio.

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Obesity, Metabolic syndrome, Diabetes

Cod: W217

REGULATED ON ACTIVATION, NORMAL-T CELL EXPRESSED AND SECRETED (RANTES/CCL5) LEVELS: AN ASSOCIATION WITH EPICARDIAL VISCERAL FAT THICKNESS

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BACKGROUND
Epicardial adipose tissue (EAT), accumulated around the heart, is considered an index of visceral adiposity and a promising indicator of high cardio-metabolic risk. Evidences showing that EAT is a metabolically active organ and a source of inflammatory adipo-chemocytokines suggest a condition of chronic inflammation in this small cardiac fat depot. However, the potential links between cardiac adiposity and circulating levels of inflammatory adipo-chemokines, as markers of subclinical inflammation, are not completely understood.Our aim is to evaluate whether cardiac adiposity, measured as EAT thickness, is related to Regulated on activation, Normal T Cell Expressed and Secreted (RANTES/CCL5) levels, in obese patients.
METHODS
EAT thickness (meauserd by echocardiography, on the free wall of right ventricle), RANTES/CCL5 and other inflammatory markers (by ELISA kit) were measured in 36 women with uncomplicated obesity (OB) (BMI 41.6±5.6 kg/m^2) and 15 normal-weight controls. Abdominal visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT) were assessed by computed tomography (CT).
RESULTS
OB patients had thicker EAT (6.8±0.9 vs. 1.3±0.3 mm, $p<0.0001$) and higher RANTES/CCL5 levels (2468.9±745.5 vs. 1272.1±413.7 pg/ml, $p<0.03$) than controls. The EAT thickness positively correlated with RANTES/CCL5 concentrations ($r2=0.65$, $p<0.001$). Moreover, EAT thickness and RANTES/CCL5 concentration were directly correlated with indices of fat distribution (VAT, VAT/SAT and waist, $p<0.001$ for all). Notably, when using multiple regression analysis, RANTES/CCL5 levels most closely correlated with EAT thickness ($t=3.93$) and VAT areas ($t=3.77$), while other indices of fat distribution did not enter the model.
CONCLUSIONS
EAT thickness, an indicator of cardiac adiposity, may be related to inflammatory adipo-chemokines in visceral-obese patients and might be used as a reliable marker of visceral adiposity. The elevated RANTES/CCL5 levels, contributing to the pro-inflammatory state, may also lead to cardio-metabolic disorders.

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Obesity, Metabolic syndrome, Diabetes

Cod: W219

ASSOCIATION BETWEEN INFLAMMATORY CYTOKINES TNFA AND IL-6 AND INSULIN RESISTANCE INDEX IN GESTATIONAL AND TYPE 2 DIABETES.

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BACKGROUND-AIM
Gestational diabetes (GDM) is a type of diabetes that is similar to type 2 (T2D). Insulin resistance and subclinical inflammation are important pathophysiological contributors to both types of disease. The aim of this study was to evaluate serum IL-6 and TNFα levels in diabetic patients and assess their relationship with insulin resistance index (HOMA-IR).

METHODS
The study included 80 women with gestational diabetes and 70 type 2 diabetes patients.
Serum IL-6, TNFα and insulin level were measured by ELISA (R&D Systems). Glucose concentration were measured using enzymatic methods on the biochemical analyzer XL180 Erba Lachema (Czech Republic).

RESULTS
In both studied diabetes groups TNFα and IL-6 levels correlated positevely with insulin concentration and HOMA-IR. The relationship between TNFα, insulin and HOMA-IR in GDM group were (r=0.2676, p=0.016; r=0.2982, p=0.007), while in T2D group these association were (r=0.5203, p=0.000; r=0.4186, p=0.000). The second relationship between IL-6, insulin and HOMA-IR in GDM and T2D were (r=0.4045, p=0.000; r=0.3837, p=0.00) and (r=0.3336, p=0.005; r=0.3002, p=0.012), respectively. Moreover, significant possitive relationship were observed between both TNFα and IL-6 concentrations and HbA1c level in T2D group (r=0.3287, p=0.005; r=0.3115, p=0.009).
CONCLUSIONS
The study showed that both cytokines TNFα and IL-6 contributes significantly to insulin resistance and might have prognostic and pathophysiological significance in both types of diabetes.

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Obesity, Metabolic syndrome, Diabetes

Cod: W220

SERUM VITAMIN DEFICIENCIES AND THE OTHER BIOCHEMICAL CHANGES IN OBESE INDIVIDUALS AFTER BARIATRIC SURGERY: 2012-2016 A RETROSPECTIVE COHORT STUDY

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BACKGROUND: Obesity continues to be a major public health problem in the world. Bariatric surgery is the most effective treatment in the control of morbid obesity. Long-term metabolic deficits such as nutrient deficiencies can be considered the main risks of malabsorptive procedures of bariatric surgery. The aim of this study to assess the serum vitamin deficiencies and the other biochemical changes of obese individuals having been submitted to bariatric surgery.
METHODS: A retrospective analysis was performed using the electronic charts of patients submitted to bariatric surgery at the Bakirkoy Training and Research Hospital between 2012 and 2016. The following data were collected: surgical technique, sex, age, marital status, postoperative lifestyle, serum concentrations of vitamin D, vitamin B12, iron, folic acid, lipids (total cholesterol (TC), high density lipoprotein (HDL-c), low density lipoprotein (LDL-c), triglycerides (TG)) and other biochemical parameters. For levels of vitamin B12 and folate, the following reference values were given: 200 to 800 pg/ml and 9,3 to15,7 nmol/l respectively. The values adopted for serum iron according to gender were, for men, 60-155mg/dl and, for women, 35-140 mg/dl. For the values of serum lipid profile, a levels of TC equal to 200 mg/dl was used, having as preventive goal those distributed in LDL-c <160 mg/dl, triglycerides <150 mg/dl and HDL-c >40 mg/dl, classifying them in desirable, high and low.
RESULTS: Among 828 individuals evaluated, females accounted for 79.6% of the overall sample. Sleeve gastrectomy was performed more (85.9%), but greater nutrient deficiencies were found following gastric bypass. Vitamin B12 was the most prevalent deficiency (37.3%), followed by iron (26.9%) and folic acid (12.5%). Mean vitamin D levels remained below 20ng/ml following bariatric surgery. 58.6% of patients had total cholesterol in the range of 196-247 mg/dl and, among these, 34.5% decreased to the range of 144-169 mg/dl in postoperative period. As to the LDL-c before surgery, 53.8% of patients were presented within the ranges of 106.3-119 mg/dl; from these, 12.6% raised to the range 131-159 mg/dl and 15.3% lowered to the range 92.5-100.3 mg/dl.
CONCLUSION: Monitoring of biochemical changes, treatment and control of risk factors are essential to prevent complications after bariatric surgery.

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Obesity, Metabolic syndrome, Diabetes

Cod: W221

GLUCOSE TESTING IN NEW MINICOLLECT® BLOOD COLLECTION TUBES

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Background: Where small sample volumes are critical, especially for infants, elderly or obese patients, the new MiniCollect tube allows the highest flexibility and accuracy by collecting blood in unprecedented simplicity. MiniCollect FX Sodium Fluoride/ Potassium Oxalate Tubes are used for the determination of glucose and lactate in capillary blood.
Methods: Two studies were done at Steyr Hospital (Austria) and Laboratory Rainbach (Austria) using MiniCollect tubes with the old design vs. new design. Altogether, 80 hospitalized and 50 healthy subjects were recruited. Informed consent was given by all donors and the study was approved by EC Upper Austria. Directly after venous (hospitalized subjects) or capillary (healthy subjects) blood collection, the tubes were inverted 8 times and processed according to the IFU for MiniCollect tubes. After centrifugation for 10 min at 3000g, glucose and lactate were tested using an AU680 (Beckman Coulter). Analysis was done with the instrument's accompanying reagents.
Results: Evaluation of all clinical data and deviations was done on the basis of the maximum allowed deviation for a single value according to the guidelines of the German Association of Quality Assurance of Laboratory Testing (Rilibäk). The utilization of tubes with old and new design for performance testing did not reveal any clinically nor statistically significant deviations ($p<0.05$). The values of glucose concentration resulted in a highest deviation of 1.7% (for both venous and capillary collection), and the lactate values indicated deviations of 2.5% (venous) and 2.2% (capillary) between both tubes.
Conclusion: From a clinical perspective, the MiniCollect FX NaF/KOx tubes with the new design are substantially equivalent to the tubes with the old design. The newly designed tubes provide an essentially enhanced blood collection device for skin-puncture testing. As the fundamental advantage is the guarantee of the sample integrity for high quality results in case of critical sample collections and transport of the tubes, the supporting information and data obtained from adult populations are more than adequate to establish safety and effectiveness for the patient indication.

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Obesity, Metabolic syndrome, Diabetes

Cod: W222

INAPPROPRIATE AND CONFUSING ORAL GLUCOSE TOLERANCE TESTS – A COMMON PROBLEM

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Background: In the Singapore Ministry of Health diabetes diagnostic algorithm, oral glucose tolerance tests (OGTT) are restricted to patients with fasting plasma glucose concentrations of 6.1-6.9 mmol/L. This guideline was published in 1999 and is the standard of care in Singapore. This study examined whether indeed this algorithm is used in a 1400 bed general hospital and whether the results could be classified into the accepted categories of impaired fasting glycaemia (IFG), impaired glucose tolerance (IGT) and diabetes mellitus (DM).

Methods: Details of all OGTT performed from 2013-2015 inclusive were extracted from the laboratory information system. A OGTT involves fasting (FG) and 120 min plasma glucose (120minG) samples following a 75g oral glucose load.

Results: In 3 years, 1125 OGTTs were performed of which 254 (22.6%) had fasting glucoses of 6.1-6.9 mmol/L. The final categorisation for these cases was: 45 IFG, 87 IGT and 121 DM. Comparing the results of the FG and 120minG for the other cases, there was 81% concordance with 155 FG<7.0/120minG >=11.1 mmol/L and 22 FG>=7.0/120minG <11.1 mmol/L. There were 16 cases with FG >10.0 mmol/L. There were 76 cases with FG <=4.5, of which none had 120minG>=11.1 mmol/L.

Discussion: Most OGTT requests did not meet the Singapore MOH criteria. In 20% of these cases, the FG and 120minG results led to conflicting categorisation. Better clinician education and triage of requests is needed to reduce inappropriate requests and diagnostic confusion. As a first step, eliminating OGTT if FG<=4.5 mmol/L would reduce testing without any potential diagnostic data loss.

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Obesity, Metabolic syndrome, Diabetes

Cod: W223

STUDY OF ASSOCIATION OF VITAMIN D RECEPTOR GENE METHYLATION STATUS WITH RISK OF GESTATIONAL DIABETES MELLITUS IN AN IRANIAN PREGNANT WOMEN POPULATION

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BACKGROUND
Gestational diabetes mellitus (GDM) is defined as glucose intolerance that is first detected during pregnancy. Epigenetic changes such as DNA methylation is thought to play an important role in the development of and predisposition to GDM. Vitamin D receptor (VDR)-mediated signaling pathways and vitamin D levels seem to affect the risk of carbohydrate metabolism disorder such as GDM. This study sought to investigate the relationship between VDR gene methylation and susceptibility to GDM in an Iranian pregnant women population.
METHOD
This case-control study was performed on a population of pregnant Iranian women, including 157 GDM and 157 non-GDM subjects. The diagnosis of GDM was based on the criteria of the International Association of Diabetes Pregnancy Study Group (IADPSG). DNA samples were isolated from the venous blood and modified by chemical treatment with sodium bisulfite. The promoter methylation of VDR was assessed using methylation-specific PCR (MSP).
RESULTS
MSP results revealed that the VDR gene promoter was completely unmethylated in both GDM and non-GDM groups.
CONCLUSIONS
Data of MSP indicated that there was no association between promoter methylation of VDR gene and the risk of GDM at the investigated loci.

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Obesity, Metabolic syndrome, Diabetes

Cod: W224

GLUCAGON-LIKE PEPTIDE 1 (GLP-1) AND GHRELIN RESPONSES TO INGESTION OF SELECTED NIGERIAN DIETS

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INTRODUCTION: Gastrointestinal tract (GIT) hormones such as ghrelin and glucagon-like peptide 1 (GLP-1) play crucial roles in energy homeostasis control by regulating gut motility, satiety and via their incretin effects. Although GLP-1 and ghrelin appear to have differing functions, emerging reports show that there is an important interplay between the 2 hormones as ghrelin could enhance GLP-1 release. Presently, there is the dearth of information on the interplay between these 2 gut hormones following ingestion of Nigerian meals.

OBJECTIVES: To determine the plasma changes in GLP-1 and ghrelin levels in apparently healthy male adults following ingestion of selected Nigerian meals and reference meal (oral glucose).

MATERIALS AND METHOD: Twelve apparently healthy males were recruited into this randomized cross over study. Meal tolerance testing (MTT) was carried out on each participant, on separate days, after an overnight fast using 50g available carbohydrate of each of yam flour paste (amala), wheat paste and cooked cowpea with 50g of glucose serving as the reference meal. Venous blood was collected at 0 minute and then postprandially at 30, 60, 90 and 120 minutes to determine the plasma levels GLP-1 and ghrelin using ELISA. Thereafter, area under the curve (AUC) was determined geometrically using trapezoidal rule while data were statistically analyzed using Mann Whitney U and Kruskal Wallis tests. $P<0.05$ was considered as statistically significant.

RESULT: The median AUCGLP-1 of wheat ($p=0.020$) and cowpea ($p=0.028$) were significantly higher compared with the reference meal but no significant differences were observed when the meals were compared with one another. Also, the median AUCGhrelin of wheat, cowpea and amala were not significantly different when compared with the reference meal and with one another.

CONCLUSION: Ingestion of cowpea or wheat might have some benefits in achieving optimal glycaemic control as they tend to have more incretin effects than amala. Also, ghrelin and (GLP-1) release do not seem to have similar pattern of response following ingestion of the selected meals but appear to have similar appetite induction.

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Obesity, Metabolic syndrome, Diabetes

Cod: W225

PHARMACOEPIGENETICS OF TYPE 2 DIABETES MELLITUS: NO CORRELATION OF GENOMIC DNA METHYLATION WITH HYPOGLYCEMIA IN SULFONYLUREA-TREATED PATIENTS

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BACKGROUND
Sulfonylureas (SU), a mainstay of Type 2 diabetes mellitus (T2DM) pharmacotherapy for over 50 years, are insulin secretagogues which act by blocking the K_{ATP} channels in pancreatic β-cells. The K_{ATP} channel is made up of four subunits of the inward rectifier K^+ channel (Kir6.2) encoded by KCNJ11 gene and four subunits of the sulfonylurea 1 receptor (SUR1) encoded by ABCC8 gene. Mild hypoglycemia is a frequent adverse event affecting many patients treated with these oral hypoglycemic drugs, being a serious drawback in patient adherence to therapy and everyday clinical practice. The incidence of SU-induced hypoglycemic episodes is influenced by different factors including age, renal function as well as the genetic background.
In the present study, a pharmacoepigenetic approach was applied for the first time, investigating the correlation of KCNJ11 and ABCC8 DNA methylation status with SU-induced mild hypoglycemic events as well as other patient characteristics and their pharmacogenomic profile.
METHODS
Sodium bisulfite-treated genomic DNAs of 171 SU-treated T2DM patients, including 88 that had experienced drug-associated hypoglycemia and 83 that had never experienced hypoglycemia, were analyzed for DNA methylation of KCNJ11 and ABCC8 gene promoters via Real-time Methylation Specific PCR. This patient group had also been previously genotyped for KCNJ11 E23K polymorphism which is in strong linkage disequilibrium with the ABCC8 S1369A polymorphism.
RESULTS
KCNJ11 methylation was detected in 55/83 hypoglycemic and in 50/88 non-hypoglycemic patients (p=0.205), while ABCC8 methylation in 7/83 hypoglycemic and in 5/88 non-hypoglycemic patients (p=0.481), respectively. DNA methylation in the two genes were not correlated to each other, nor were associated to E23K genotypes, or any of the other patient characteristics, including age, gender and previous treatments.
CONCLUSIONS
The present data suggest that KCNJ11 and ABCC8 DNA methylation status does not influence the incidence of hypoglycemic events in SU-treated T2DM patients and is not related to their pharmacogenetic background.

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Obesity, Metabolic syndrome, Diabetes

Cod: W226

ASSOCIATION OF SERUM ADIPOKINES WITH MALE SUBFERTILITY AND OBESITY

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Introduction: Male subfertility is associated with androgen deficiency and obesity. The regulatory effects of leptin are already present at the beginning of puberty, when fertility develops. These effects include body energy regulation and induction of the Hypothalamic-Pituitary-Gonadal axis (HPG) by secretion of GnRH-LH-FSH. The aim of the present study is to determine possible correlations between serum adipokine levels (leptin, adiponectin, chemerin) and the development of subfertility.
Methods: The study included 200 men with hypogonadism (testosterone levels <8.00nmol/L and/or LH>8,6IU/L) and a control group of 200 men of similar age without hypogonadism. The levels of adipokines, reproductive hormones and thyroid hormones were measured in the serum of patients. Somatometric measurements were obtained and Body Mass Index (BMI) and waist to hip ratio were calculated. Total body fat was assessed by the DEXA method. The correlations among parameters in the population were assessed by Spearman analysis. A series of Mann-Witney tests were employed to assess significant differences between the control group and the study group on all parameters.
Results: Data analysis in the control group revealed that chemerin correlated positively with obesity (BMI, waist/hip ratio), leptin, leptin/adiponectin ratio. On the contrary, these correlations were not observed in the hypogonadic group and were concealed in the total population. It should be noted that chemerin was found correlating positively with the levels of free T3 and free T4. Additionally a correlation between leptin/chemerin ratio and aging was observed in the hypogonadic group, but neither in the control group nor the total population. As expected, adiponectin was inversely correlated with waist/hip ratio and the percentage of body fat in the control group. These correlations were not present in the hypogonadic group and the total population. Unexpectedly, the hypogonadic group had significantly higher leptin levels ($p=0.0023$) and significantly lower chemerin levels ($p=0.0001$) in comparison with the levels of lipokines measured in the control group.
Conclusions: According to our results subfertility in men is correlated with decreased chemerin and increased leptin levels independently of obesity in men. Whereas adiponectin levels are not affected significantly in subnfertile men, the reverse correlation between adiponectin and somatometric parameters is unexpectedly absent in the subfertile population.

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Obesity, Metabolic syndrome, Diabetes

Cod: W227

FATTY LIVER INDEX IN POSTMENOPAUSAL WOMEN

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Background: Non-alcoholic fatty liver disease may be the risk factor for cardiovascular disease (CVD). However, the complex association between fatty liver, obesity, metabolic syndrome (MetS) and CVD has not been well elucidated. Therefore, we aimed to test the correlation between fatty liver, insulin resistance and cardiovascular risk in postmenopausal women.

Methods: A total of 150 postmenopausal women were included in this cross-sectional study. Anthropometric and biochemical parameters, as well as blood pressure were obtained. Non-alcoholic fatty liver disease is assessed by fatty liver index (FLI), an algorithm based on body mass index, waist circumference, triglycerides and gamma-glutamyl transferase, as a simple and accurate predictor of hepatic steatosis. Women were divided into three groups (FLI < 30, n=80; 30 ≤ FLI < 60; n=44; FLI ≥60; n=26). Homeostasis model assessment of insulin resistance (HOMA-IR) as a surrogate marker of insulin resistance was calculated. Cardiovascular risk score [determined as Framingham Risk Score (FRS)] was calculated based on gender, total cholesterol, high-density lipoprotein cholesterol, smoking status, presence of diabetes, and systolic blood pressure.

Results: There was a significant increase in HOMA-IR [median (interquartile range)] [1.10 (0.90-1.42), 2.01 (1.54-2.78), 2.67 (1.81-3.64)] and FRS (mean± standard deviation) [6.16±3.70, 10.22±5.41, 14.25±5.76] across the groups (P<0.001, respectively). Moreover, significantly higher number of obese individuals (X2 =57.29; P<0.001), as well individuals with MetS were in the group with the highest FLI (X2 =53.24; P<0.001). Spearman's non parametric correlation analysis revealed significant correlation between FLI and HOMA-IR, (ρ=0.658, P<0.001) and FRS (ρ=0.580; P<0.001).

Conclusion: Fatty liver in postmenopausal women may be the link between obesity, metabolic syndrome, diabetes on one side and cardiovascular disease on the other.

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Obesity, Metabolic syndrome, Diabetes

Cod: W228

ACTIVITIES OF ADENOSINE DEAMINASE AND XANTHINE OXIDASE IN PATIENTS WITH DIABETIC DISTAL SYMMETRICAL POLYNEUROPATHY

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Background: Diabetes mellitus is a major cause of peripheral neuropathy, commonly manifested as distal symmetrical polyneuropathy. Adenosine deaminase (ADA) is the enzyme which catalyses the deamination of adenosine, but xanthine oxidase (XO) is one of the key enzymes responsible for generation of free radicals. Adenosine deaminase (ADA) is the enzyme which catalyses the deamination of adenosine and plays an important role in modulation of insulin action on glucose metabolism in various tissues, but its clinical significance in diabetic polyneuropathy is still being studied.
Material and methods: This study involved 38 patients with diabetes mellitus and signs of distal symmetrical polyneuropathy, as well as the control group of 31 healthy subjects. The evaluation of diabetic distal symmetrical polyneuropathy (DDSP) was based on physical examination and nerve conduction studies. We compared the serum adenosine deaminase and xanthine oxidas activities of DDSP patients with healthy subjects.
Results: Laboratory analyses involved blood glucose and HbA1c levels, as well as plasma ADA and XO activity. Serum glucose and HbA1c levels were significantly higher in DDSP patients versus the control group ($p<0.001$). The activities of ADA and XO revealed a significant increase in the plasma of patient with DDSP opposite to healthy donors ($p<0.01$). There was statistically significant positive correlation between ADA activity and glucose value ($p<0.001$).
Conclusions: Elevated ADA activity as a result of ischemia-reperfusia is likely to produce superoxide radicals via XO and exaggerate the ischemia injury. These findings show that ADA and XO play an important role in ischemia injury in patients with DDSP and may be involved in the pathogenesis of diabetic polyneuropathy complications.

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Obesity, Metabolic syndrome, Diabetes

Cod: W229

IT IS NECESSARY TO REDEFINE SCREENING CRITERIA FOR GESTATIONAL DIABETES IN DIFFERENT ETHNIC GROUPS?

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Background: Gestational Diabetes Mellitus (GDM), defined as diabetes first diagnosed during pregnancy, affects between 1 and 15% of pregnancies. Between the risk factors are obesity, age, family history of diabetes, hypertension and ethnicity. To compare the prevalence of GDM in different ethnics groups is difficult due to disparity in diagnostic criteria. In this study we assessed the relative risk for different ethnic groups assisted at the same hospital with same protocol and criteria. We consider this as a preliminary study to evaluate the necessity of changing screening criteria for some ethnic groups.
Methods: This work is a retrospective study that included 4705 pregnant women assisted between September 2014 and September 2015 in our hospital. All pregnant are subjected to a 50 g oral glucose test (O'S) between 24th and 28th gestation weeks. Those with positive result (glycemia ≥ 140 mg/dL after 1h) are subjected to a 100 g oral glucose test following the National Diabetes Data Group criteria to diagnose GDM.
We divided the population in 6 groups: General population (4705), Hispanic (165), North-African (87), Sub-Saharan(25), Eastern Asiatic(33) and Eastern European(118). For each group we calculated GDM prevalence and odds ratio and O'S positive predictive value (PPV) O'S, with 95% confidence intervals.
Results: DMG prevalence (P)= 2.79(2.79-2.8), Positive Predictive Value O'S (PPV) = 11.95(11.96-11.94); Hispanic: P= 3.64(3.61-3.66), Odds Ratio DMG (OR) = 1.30(1.28-1.32), PPV = 20.69(20.63-20.75); North-African: P= 8.05(7.99-8.1), OR = 2.88(2.84-2.91), PPV= 33.33(33.23-33.43); Eastern Asiatic: P = 6.06(5.98-6.14), OR = 2.17(2.12-2.22), PPV = 40.00(39.83-40.17); Sub-Saharan: P= 16.00(15.86-16-14), OR= 5.73 (5.63-5.82), PPV = 66.67(66.48-66.85); Eastern European: P= 7.63(7.58-7.68), OR= 2.73(2.70-2.76), PPV= 50.00(49.91-50.09).
Conclusion: Prevalence of DMG in general population group (2.79%) is low but within the wide range found in bibliography. According to the calculated odds ratio, all ethnic groups analyzed are a risk factor.
As for the high PPV calculated in all ethnic groups, we present this work as a preliminary study of another that determine whether PPV so high are paired with lower NPV, what would mean the existence of an important false negative rate in the screening test and the necessity of redefine the protocol to include the diversity that implies the existence of different ethnic groups.

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Obesity, Metabolic syndrome, Diabetes

Cod: W230

A DISTINCT FATTY ACID PROFILE/PATTERNS AND LEVELS IN NEWLY DIAGNOSED TYPE 2 DIABETIC SUBJECTS

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BACKGROUND: Type 2 diabetes (T2D) and obesity represents today a global health problem. Patients with T2D often show a higher level of fatty acids (FA), associated with increase in insulin resistance (IR) and poor disposal rate or glucose control. The fundamental pathophysiological mechanisms related to T2D include decline in pancreatic Beta-cell function and apoptosis and are accompanied by increase in visceral obesity. This is followed by elevation in the plasma concentrations of FA, which are associated with an increase in fat mass and IR. Monitoring of FA levels provides greater information on metabolic state of patients, and is relevant in understanding the events leading to early development of IR, particularly in T2D. Numerous studies indicate that FAs may be potential biomarkers and pharmacological targets in T2D management.
METHODS: The study included 26 participants, 13 newly diagnosed Type2 diabetes mellitus, and 13 controls. All subjects included in this study were free of evidence of hepatitis, viral infection, or active liver and kidney damage. We analyzed levels of clinical and biochemical parameters by standard methods (IFCC) methods on autoanalyzer while concentracions of FA were determined by gas chromatography analysis.
RESULTS: In addition to the expected differences in glucose, glycated hemoglobin (HbA1c) and lipid profile, our results showed significant differences in saturated and polyunsaturated fatty acids between newly T2D patients and control subjects (C14:0, C16:0, C18:0 and C18:2 C18:3 C20:4, respectively) but not in monounsaturated fatty acids. Also, we found strong association between glucose and C14:1, C22:0 levels followed significant association of HbA1c with C14:1, C18:3 and C22:0 levels.
CONCLUSIONS: Our data point out differences in plasma patterns/profile and levels of fatty acid between saturated and polyunsaturated fatty acid but not monounsaturated fatty acid may help us to monitoring progression and precise therapy of T2D.

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Obesity, Metabolic syndrome, Diabetes

Cod: W231

DEVELOPMENT OF A NEW LATEX ENHANCED IMMUNOTURBIDIMETRIC ASSAY FOR THE RAPID DIRECT MEASUREMENT OF GLYCATED HAEMOGLOBIN (HbA1c) APPLICABLE TO RX SERIES ANALYSERS

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Background. Diabetes mellitus is a disease associated with poor glycaemic control. In the diabetic patient, where blood glucose levels are abnormally elevated, the level of HbA1c also increases proportionally to the level of glucose in the blood and has been widely accepted as an indicator of the mean daily blood glucose concentration over the preceding 6-8 weeks. It is therefore, a long term indicator of diabetic control, whereas, blood glucose is a short term indicator. The availability of assay kits allowing rapid, accurate and reproducible measurement of HbA1c facilitates long term monitoring of diabetes mellitus. This study reports the development of a new liquid stable latex enhanced immunoturbidimetric assay kit with enhanced precision and accuracy for the rapid direct measurement of HbA1c in human whole blood. The assay was applied to the fully automated RX series analysers with sample pre-treatment being completed on-board.
Methods. The assay is based on latex immunoagglutination. HbA1c in the test sample is absorbed onto latex particles, and then cross-linked anti-HbA1c is added to form an antigen-antibody complex. Concentrations are calculated from a 5 point spline calibration curve. On-board and calibration stabilities were tested by storing the reagents uncapped on the RX imola for 28 days. Within-run and total precision were assessed by testing whole blood samples at defined medical decision levels, 2 replicates twice a day for 20 days. Correlation studies were conducted against the NGSP HPLC method, 40 whole blood patient samples were tested.
Results. The HbA1c reagent presented an on-board stability of 28 days and calibration frequency of 28 days. The assay presented an assay range of 3.3 to 15.6 % HbA1c (top calibrator dependent). Within-run and total precision for three different concentration levels showed CV(%) values typically ≤5%. In the correlation study the following linear regression equation was achieved: $Y = 1.06x – 0.25$; $r^2 = 0.981$.
Conclusion. This new immunoturbidimetric assay kit exhibits high accuracy and reproducibility with the added advantages of using liquid reagents with good stability, and on-board pre-treatment of samples. This represents an analytical improvement for use in the determination of HbA1c in human whole blood.

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Obesity, Metabolic syndrome, Diabetes

Cod: W232

CORRELATION BETWEEN BODY FAT DISTRIBUTION AND THE PRESENCE OF INSULIN RESISTANCE

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Background:Central type of obesity is associated with insulin resistance, and it is a risk factor for numerous cardiometabolic complications. Aim of the study was evaluation of association between body fat distribution and the presence of insulin resistance in overweight patients.
Methods:This pilot study included 24 overweight patients. 20 healthy age and gender matched subjects were included in control group. Body mass, body height and waist circumference were measured and Body mass index (BMI) and Waist to height ratio (WHtR) were calculated. Glucose and insulin level, in a fasting state, were measured on automated analyzers for all study participants. Homeostasis model assesment–insulin resistance index, HOMA–IR, is calculated by presented formula: HOMA-IR= glucose × insulin) / 22,5.
Results:There are statistically significant higher values of BMI (31.45±3.51vs.22.40±1.57;$p<0.01$), WHtR (0.636±0.057vs.0.471±0.031;$p<0.01$) and HOMA-IR (5.47±2.92vs.1.68±0.64;$p<0.01$) in study group compared to controls. Positive, but weak correlation between BMI and HOMA-IR ($r=0.405$; $p<0.05$) was observed in overweight patients, while the correlation between WHtR and HOMA-IR was highly significant ($r=0.603$; $p=0.001$) in this group.
Conclusions: Strong correlation between WHtR, as a marker of central type of obesity and HOMA-IR, regarding the weak correlation of BMI and HOMA-IR in overweight patients indicates that not only body mass measurement is needed but also assessment of body fat distribution is necessary.

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Obesity, Metabolic syndrome, Diabetes

Cod: W233

SERUM S100A9 IS ASSOCIATED WITH CORONARY ARTERY CALCIFICATION IN TYPE 2 DIABETES MELLITUS

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Background: Vascular calcification is a typical feature of diabetic vasculopathy, and can involve either the tunica media of the artery or the atherosclerotic plaque. Mechanisms responsible for calcification process in type 2 diabetes (T2DM) derive from a complex interplay among resident vascular cells, local mediators, and circulating factors, and are far to be fully understood. Evidences suggest that metalloproteinases (MMPs) are implicated with the development and progression of diabetic microvascular complications and that the calcium binding proteins S100A8/A9 are associated with acute coronary syndrome and atherosclerosis in T2DM.
The aim of this study was to evaluate whether serum and mRNA expression levels of MMP8, MMP9, S100A8, S100A9 are associated with coronary artery calcification (CAC) in patients with T2DM.
Methods: mRNA from PBMCs relative quantification (Real-Time PCR) and serum levels (ELISA, Elabscience Biotechnology Co., USA) of MMP8, MMP9, S100A8 and S100A9 were performed in samples from 87 T2DM patients. Recorded data included also age, gender, HbA1c, BMI and CAC. Coronary artery calcium detection was performed during coronary angiography by fluoroscopy as described by Bartel et al. (Bartel AG et al, Circulation 1974; 49:1247-1253).
Results: Patients were 80% males with a mean age of 67.8 yrs (SD= 8.4). CAC was observed in 79% of patients. Gender, age, HbA1c and BMI were not statistically associated with CAC. mRNA levels of MMP8, MMP9, S100A8 and S100A9 were not statistically associated with the presence of CAC. Serum MMPs and S100A8 were not correlated, while lower serum levels of serum S100A9 were found in patients with than in those without CAC (p=0.048). Multiple logistic regression analysis including age, gender and HbA1c confirmed that serum S100A9 was an indepentend predictor of CAC (OR=0.74, 95%CI: 0.56-0.98, p=0.035).
Conclusions: an increased serum S100A9 appears to be protective towards the development of coronary artery calcification in T2DM patients. This finding fits with the hypothesized role of S100 proteins in the pathogenesis of T2DM vascular complications and suggests the potential role of serum S100A9 as a biomarker for T2DM.
The study was supported by “BANDO PRIN 2010-20112010YK7Z5K” and by the EC under the 7th FP (grant agreement no. 306031).

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Obesity, Metabolic syndrome, Diabetes

Cod: W234

SMALL DENSE LDLC PROFILE AND MULTIMERIC FORMS OF ADIPONECTIN LEVELS ARE ASSOCIATED WITH NEW MARKERS OF ADIPOSITY

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Background: The obesity is systemic in nature, that a visible manifestation is the increase in body mass index (BMI), characterized by high storage and irregular distribution of white adipose tissue represented by markers of adiposity. Obesity is the prototype of metabolic disease, in this an early event is the decreased synthesis of adiponectin while dyslipidemic clinical course shown increase of LDL cholesterol levels. LDL cholesterol consists of a heterogeneous spectrum of particles between them, small dense LDL particles (sdLDL) are believed to be particularly atherogenic due to increased susceptibility to oxidation its might be a better predictor of coronary atherosclerosis than standard lipids and lipoproteins.
Methods: In this cross-sectional study 260 adults aged 20 to 59 years, were recruited from general population and were classified according to the recommendations' of World Health Organization, by BMI. Body dimensions, body fat distribution, status of adiposity were measured by routine methods. Soluble multimeric forms of adiponectin (total, HMW and LMW) and soluble insulin levels were evaluated by ELISA method. We quantified the serum concentration of LDLc profile and non-esterified fatty acids (NEFA) by immuno-turbidimetry and colorimetric methods.
Results: In this study, the observed frequency of obesity was 63%. Status assessment of body fat showed high adiposity. Individuals with obesity have metabolic dysregulation, showing from differences in average of serum concentrations in lipid profile, metabolic markers and insulin and cholesterol indices with exception of HDLc and apolipoprotein A-1. The LDLc and sLDLc levels, were: means 128.4 ± 45.9 versus 112.3 ± 41.0 and 41.9 ± 15.1 versus 30.0 ± 15.6, in individuals with obesity versus without obesity, respectively; while LMW adiponectin (#x = 2253 ng/mL ± 787 versus 1752 ng/mL ± 1070, respectively), $P<0.05$. Whereas HMW adiponectin levels shows significant decrease in individuals with obesity and correlated negatively, r from -42.6 to -21.4 with trunk fat mass proportion, total adipose area and abdominal volume index.
Conclusions: small LDLc profile and multimeric forms (HMW and LMW) of adiponectin levels are associated with new markers of adiposity.

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Obesity, Metabolic syndrome, Diabetes

Cod: W235

NEW INDICATORS OF RESOLVIN E1 AND CHEMERIN LEVELS AND ITS ASOCIATION WITH OBESOGENIC FACTORS IN THE CONTEXT OF OBESITY

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Background: Obesity is well-known as a complex disease, it concerns heterogeneous etiology with a wide spectrum of clinical manifestations. The inflammatory response is central in the pathogenesis of obesity; its irregular accumulation of white adipose tissue (WAT) favors a redundant process, due to the production of lipid mediators (resolvin E1, RvE1), chemokines (chemerin) and the increase of adipogenesis, both events outlining the characteristics of the obesogenic process laid in the body. The aim of this study was to identify the relationship of RvE1 and chemerin levels as new indicator that characterized the obesogenic phenotype of subjects with obesity, based on the soluble levels of RvE1 and chemerin.
Methods: Cross-sectional study with 267 individuals and classified based on World Health Organization criteria by BMI in two groups: with obesity (BMI $\geq$ 30.0 kg/m^2) and without obesity (BMI<30.0 kg/m^2). Body fat storage measurements, metabolic and inflammatory markers were measured by routine methods. Soluble RvE1 and chemerin were evaluated by ELISA method. RvE1-chemerin-fat relationship were performed: RvE1/chemerinindex, RvE1/chemerin ratio; RvE1-adiposity ratio and chemerin-adiposity ratio.
Results: Increased levels of soluble RvE1 (mean 1241 ng/mL ± 687), chemerin (mean 91 ng/mL ± 31) were observed in individuals with obesity compared with individuals without obesity (means 911 ng/mL ± 765, 79 ng/mL ± 23, respectively). The RvE1-chemerin index and ratio were higher in individuals with obesity than individuals without obesity, while RvE1 and chemerin fat relationship were lower, $P < 0.05$. RvE1 and chemerin levels displayed positive correlations along body fat measurements and inflammation markers, (positively, r from 16.3 to 47.9). Analysis by tertiles shown that the serum levels of RvE1 and chemerin were associated with high storage of fat mass, distribution and adiposity indices.
Conclusions: Levels of RvE1 and chemerin were higher and associated with obesogenic factors. These results suggest that, when white adipose tissue becomes dysfunctional and shown both chemerin and RvE1 high levels, its relationship can be able to play roles as new indicators in the context of obesity.

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Obesity, Metabolic syndrome, Diabetes

Cod: W237

THE LEVEL OF PROTHROMBOTIC MARKERS ENDOTHELIAL FIBRONECTIN AND NITRIC OXIDE IN METABOLIC SYNDROME PATIENTS

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Background-Aim. The metabolic syndrome or insulin resistance syndrome naturally accompanied is not only impaired glucose tolerance and development of type 2 diabetes, and dyslipidemia Its accompanied with visceral type of obesity, hypertension, and prothrombotic status. Vascular endothelial condition can estimate the level of production of endothelial markers fibronectin and nitric oxide (NO) that are associated with complications of blood coagulation.
Methods. Blood Plasma level of fibronectin and concentration of nitric oxide were investigated in patients with metabolic syndrome. Patients suffered from the disease for 6 years on average. Were examined 44 patients with type 2 diabetes, 29 hypertensive patients with obesity, 24 - control. The level of fibronectin in the blood plasma was determined by ELISA, using by «Technoclone» test systems (Austria). The concentration of nitric oxide was determined by the end metabolites nitrate and nitrite by using spectrophotometry method (Golikov, Russia).
Results. Were found an increased plasma level of fibronectin in metabolic syndrome patients with type 2 diabetes compared to control (389,06±38,65 and 221,66±30,03 pmol/ml respectively, $p<0,05$), in hypertensive patients with obesity compared to control (259,73±31,07 and 221,66±30,03 pmol/ml respectively, $p<0,05$), and in non-obese hypertensive patients compared to control (259,99±44,28 and 221,66±30,03 pmol/ml respectively, $p<0,05$). The level of fibronectin correlated with the levels of Hba1c, blood glucose, insulin, key markers of lipid metabolism, body mass index. We noted significant decrease the NO production by an average of 29% in plasma of patients with metabolic syndrome.
Conclusions. The revealed change could reflect an endothelial dysfunction in this pathological state. Hyperglycemia, dyslipidemia, insulin resistance, obesity appears to be significant factor to contributing elevation of fibronectin. Elevated levels of fibronectin on the background of the simultaneous reduction of nitric oxide production in the metabolic syndrome can be a predictor of thrombotic conditions. It can actually be used as a prognostic markers for evaluate hemostasis system complications of patients with metabolic syndrome.

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Obesity, Metabolic syndrome, Diabetes

Cod: W238

EFFECT OF TRIGONELLA FOENUM GRACEUM (FENUGREEK) SEEDS ON INSULIN RESISTANCE (HOMA-2) IN NORMAL, METABOLIC SYNDROME AND TYPE II DIABETIC PATIENTS.

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Background
Insulin resistance is important metabolic abnormality associated with metabolic syndrome and type II diabetes. Fenugreek seeds have been reported to have a multiple benefits to control diabetes. It is part of Indian cuisine.
Methods
Open-label, randomized, controlled, prospective study of 3 months duration included 253 subjects. They were divided into subgroups- healthy (Control 30, test 31), metabolic syndrome (Control 30, test 30), diabetes group (Control 30, test - newly diagnosed for monotherapy 68, and fully developed cases as adjunct therapy 30). Control group did not receive medicine. Test group was administered 4 tablets of Fenugreek /day (1.32 gm extract equivalent to 13.2 gm Fenugreek seed powder). Follow up was done by HOMA II (computerized model with S. Insulin, Fasting blood sugar) and HbA1c.
Study was carried out after ethical committee clearance under supervision and guidance of physician and in real life situation.
RESULTS:
In test group: base to 3 months mean ± s.d.
FBS (mg%): Healthy 85.19±5.42 to 75.71±5.57; metabolic syndrome 105.21±3.98 to 76.94±4.08; Monotherapy 157.91±11.24 to 118.06±5.80; Adjunct 257.00±42.19 to 197.00±38.83.
HbA1c (%): Healthy 4.59±0.63 to 4.59±0.63, metabolic syndrome 5.68±0.59 to 5.03±0.67; Monotherapy 7.38±0.48 to 7.07±0.36; Adjunct 11.63±1.61 to 10.35±1.04.
S. Insulin (µiu/ml): Healthy 5.89±1.09 to 5.65±1.05; metabolic syndrome 21.41±17.68 to 14.72±6.03; Monotherapy 15.42±4.60 to 12.46±3.63; Adjunct 18.60±6.18 to 14.96±4.13.
HOMA I R II (%): Healthy 0.73±0.15 to 0.70 ± 0.15, metabolic syndrome 2.45±0.92 to 1.80±0.73; Monotherapy 2.27±0.71 to 1.69±0.52; Adjunct 3.36±1.35 to 2.32±0.69.
p value<0,05 for FBS,HbA1c,HOMA in metabolic syndrome and diabetic group. Values were not significantly altered in healthy subjects.
In control group (healthy, metabolic syndrome and diabetic group) base to 3 months no significant changes.
Safety parameters unaltered, no serious side effects.

CONCLUSION:
Aqueous extract of Fenugreek in tablet form is effective to control metabolic disturbances- hyperglycemia and insulin resistance in metabolic syndrome and type 2 diabetes

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Obesity, Metabolic syndrome, Diabetes

Cod: W239

PARTICIPATION OF ADIPONECTIN IN LOW AFFINITY INFLAMMATION IN OBESE PEOPLE

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Introduction: Adiponectin is a protein composed of 244 amino acids with molecule mass of 30 kDa, and it is synthesized only in adipocytes. Although adipocytes are the most important and only source of adiponectin, levels of this hormone in serum are not increased in obesity as it is the case with levels of leptin. Positive correlation of adiponectin levels with the amount of subcutaneous fat tissue has been confirmed as well as its inverse connection with the amount of visceral fat tissue.
Aim: The aim of our investigation is the comparison of adiponectin levels in serum in people with normal weight and in obese people as well as the correlation between adiponectin and marker of low level inflammation- hsCRP.
Methods: This study included 82 examinees of both sexes, smokers and non-smokers, and all of them were older than 18 years old. The concentration of adiponectin was measured in the serum by ELISA technique with ready-made kits (Human adiponectin ELISA Kit), manufactured by Bio Vendor Medicine Czech Republic. Measuring of hsCRP was carried out on the same day by spectrophotometric method on biochemical analyzer model Alcyon manufactured by Abbott with commercial reagents of the abovenamed company. Samples for examinations were kept at -20°C.
Results: In the investigation negative correlation of the presence of adiponectin concentration in the examinees of the control group and the group of obese people was found. In the investigation statistically significant connection of hsCRP with adiponectin in the obese group (p=0,053) was not found.
Conclusion: In the serum of obese persons we did not have negative correlation of adiponectin concentration of highly sensitive CRP;
In the serum of obese persons we noticed that there is a reduction in adiponectin concentration. Further investigations about the connection of adipocytokine isoforms and their correlation with inflammation markers are necessary.

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Obesity, Metabolic syndrome, Diabetes

Cod: W240

MULTICENTER EVALUATION OF A NEW HIGH-THROUGHPUT HbA1c TESTING PLATFORM

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Background: This study with anonymized leftover patient samples was performed to validate the overall system functionality, user interaction and analytical performance of the new cobas c 513 analyzer using the Tina-quant® HbA1c Gen. 3 assay. Methods: The HbA1c determination is based on the turbidimetric inhibition immunoassay (TINIA) for hemolyzed whole blood. This established assay is standardized against the approved IFCC reference method for measurement of HbA1c in human blood. The novel analyzer has the capacity to process up to 400 closed whole blood or hemolysate samples for HbA1c testing per hour. Method comparisons were performed with commercially available dedicated HbA1c analyzers COBAS INTEGRA 800 CTS, Tosoh G8 and Menarini HA-8180V. Results: HbA1c applications for both whole blood and hemolysate samples show a very stable analyte recovery of assigned target values ±1 SD (~5.5 % ± 0.34 and ~10 % ± 0.6) and high precision using both quality control materials and different concentrations of whole blood pools or hemolysates. The repeatability and intermediate precision for the whole blood and hemolysate applications in %HbA1c was 0.4-0.7 % and 0.8-1.5 % respectively. The comparison of HbA1c Gen. 3 on cobas c 513 to HbA1c Gen. 2 on COBAS INTEGRA® 800 CTS using 10052 whole blood samples from two labs combined shows high concordance (slope (95%CI) = 1.00 (1.00, 1.01); intercept (95%CI) = -0.15 (-0.13, -0.18)). Moreover analyte concentrations as measured by the cobas c 513 and Tosoh G8 (slope (95%CI) = 0.94 (0.94, 0.95); intercept (95%CI) = 0.21 (0.16, 0.26); n=500) and Menarini HA-8180V (slope (95%CI) = 0.96 (0.94, 0.97); intercept (95%CI) = 0.29 (0.19, 0.40); n = 249) are comparable. The cobas c 513 also proved to reveal reliable results with system handling provocations as they can occur during routine use. Recovery rates of 98.2 to 102.6% were obtained with IFCC reference materials. The HbA1c Gen. 3 whole blood application on cobas c 513 moreover exhibited linearity in the tested range of 4.8-14.0 % HbA1c. The quantification of HbA1c Gen. 3 on cobas c 513 was not influenced by common Hb variants HbAS, HbAC, HbAD, HbAE and HbA2. The cobas c 513 system was rated with “exceeds expectations” in 92.3% of questions by operators with regard to practicability and usability. Conclusion: The cobas c 513 has proven to be a reliable system that yields excellent analytical performance of the Tina-quant® HbA1c Gen. 3 assay in high throughput laboratories. Additionally, operators have rated the system usability as exceeding expectations.

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Obesity, Metabolic syndrome, Diabetes

Cod: W241

RELATIONSHIP OF HEMATOLOGICAL PARAMETERS AT DIFFERENT LEVELS OF GLYCATED HEMOGLOBIN

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BACKGROUND-AIM

Glycated hemoglobin (HbA1c) is used routinely used as a marker for long term glycemic control in diabetic patients to assess response to therapy, the risk of developing complications and also as a diagnosis of Diabetes.
HbA1c is an advanced glycation end product which is induced by hyperglycemia, which in turn possibly relates with hyperreactive platelets, while the red blood cells in reducing the half-life and deformability.
The objective of the study is to evaluate hematological parameters when HbA1c was normal and altered in outpatient.

METHODS

A transversal, retrospective study during January 2013 to November 2014 was included 416 patients. HbA1c was categorized normal (<6.5%) and altered (≥ 6.5%). They were excluded from the study patients who had leukocytosis, anemia and thrombocytosis.
The hemogram was processed in a hematologic analyzer (CELL-DYN®, Abbott, México), glucose was performed in Metrolab 2300 (Wiener Lab, México) and HbA1C levels were estimated by high performance liquid chromatography (HPLC) ion exchange (D-10™, Biorad).
The averaged ± standard deviation were used if the distribution was parametric and median (interquartile range) a non-parametric distribution. For bivariate analysis was used test T-student and median test.

RESULTS

A total of 416 patients 247(59.38%) had altered levels of HbA1c, 153 (61.94%) were female. The average age and hemoglobin was 56.96±15.11 years old, 14.70±1.39 g/dl respectively; while the median platelet count was 229.5 (200 - 272) $10^3/\mu l$.
Leukocytes ($p < 0.001$) and mean platelet volume ($p = 0.001$) showed statistically significant differences between groups of normal and altered HbA1C, but no differences were observed in the parameters of hemoglobin ($p=0.185$), red cell distribution width ($p = 0.412$) and platelets ($p = 0.231$).

CONCLUSION

The results of our research show that altered levels of HbA1c (≥6.5%) is possibly associated with an increase in the number of leukocytes and mean platelet volume, the latter parameter showing platelets are more reactive and play an important role in the micro and macrovascular complications.

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Obesity, Metabolic syndrome, Diabetes

Cod: W242

URTICA DIOICA DISTILLATE (ARAGH GAZANEH) RESTORES ALTERED GLUCOSE METABOLISM IN DIABETIC RATS

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Background: Urtica dioica (UD) is well known as a hypoglycemic plant. While the anti-diabetic properties of its extract is well studied, there are not any published reports regarding its distillate, a drink widely being used in different areas of Iran according to Traditional Iranian Medicine for treating diabetic patients.
Materials and methods: To justify the use of UD distillate (UDD) for treatment of diabetes, a series of experiments were performed on 24 male rats. The groups consisted of two treatment and two control groups, each one containing normal and diabetic rats. During 4 weeks, the rats in the treatment and control groups received UDD and water by gavage, respectively. Every nine days, the rats were weighted and their fasting blood glucose (FBS) values were measured. Following 4 weeks of treatment, all the rats were sacrificed for further experiments. FBS, serum insulin levels and the specific activity of hepatic enzymes including glucokinase, hexokinase and glucose 6-phosphate dehydrogenase were measured using standard methods.
Results and discussion: The amount of insulin secretion and also the specific activities of hepatic enzymes were significantly increased in the treated diabetic group. A significant decrease was also observed in the blood glucose of the treated diabetic rats compared to the diabetic control ones. UDD consumption by diabetic treated rats not only prevented weight loss but also caused a dramatic weight gain. Therefore, these results suggested that UDD administration could improve diabetic conditions by enhancing insulin secretion and liver glucose metabolizing enzymes' activity and could be used as an anti-diabetic drink as well.

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Obesity, Metabolic syndrome, Diabetes

Cod: W243

PREDICTORS OF METABOLIC SYNDROME IN PATIENTS WITH DEPRESSION: AN EXPLORATORY STUDY FROM NORTH-WESTERN INDIA

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Background: Compared to general population, metabolic syndrome (MS) is found to be more prevalent in patients with psychiatric disorders including depression. Due to sparse Indian data, this study was aimed to assess the MS in patients with depression and to compare them with matched healthy controls.
Methods: Three hundred fifty eight patients with depressive disorders and thirty-six age and gender matched healthy controls were assessed for the prevalence of MS using modified ATP III criteria. The patients were analyzed for metabolic profile including fasting blood sugar (FBS), lipid profile and for anthropometric parameters waist to hip ratio (WHR), body mass index (BMI) and clinical evaluation of blood pressure (systolic – SBP and diastolic-DBP). The data were statistically analyzed using Chi-square test, student's t-test, Man-Whitney U test and binomial logistic regression by SPSS 14.
Results: Prevalence of MS in patients with depression was 38.5%, which was significantly higher than the healthy control group (13.8%) X2=7.36, p=0.007. The most common abnormality was lower HDL level in depression group (X2=28.42, p<0.001), whereas increased waist circumference in healthy control group (X2=5.44, p=0.02). Compared to healthy controls, significantly greater proportion of patients with depression had abnormal FBS (t = 2.76, p <0.006), and HDL levels (t=5.21, p <0.0001). Besides the prevalence of MS in 38.5% of patients with depressive disorders, other 58% of patients fulfilled one or two criteria of MS. Binomial logistic regression analysis showed that significant predictors of MS were being married (odds ratio - OR 3.50; p=0.002), obese (OR 4.81; p<0.001), greater age (OR 1.05; p<0.001), age at onset of depression (OR 1.05; p<0.001) and weight (OR 1.07; p<0.001), BMI (OR 1.27; p<0.001), duration of depression (OR 1.01; p<0.001) and multiple episodes of depression (OR 1.86; p<0.001).
Conclusions: Nearly one-third of depressed patients has MS and another three-fifth of patients had one or two abnormalities in the MS criteria. The prevalence of MS was significantly higher than the healthy controls. Patients with depression should be regularly evaluated for the presence of cardiovascular risk factors and appropriate management strategies must be instituted at the earliest.

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Obesity, Metabolic syndrome, Diabetes

Cod: W244

PERFORMANCE EVALUATION OF THE ATELLICA CH HEMOGLOBIN A1C_3 ASSAY*

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Background: The purpose of the investigation was to evaluate the analytical performance of the Atellica™ CH Hemoglobin A1c_3 assay on the Atellica™ CH Analyzer**. Measurements of hemoglobin A1c are used for monitoring the long-term care of people with diabetes. In an automated pretreatment step, the whole-blood sample is mixed with A1c_3 Denaturant Reagent. The red blood cells are lysed and the hemoglobin chain is hydrolyzed by protease present in the reagent. A latex agglutination inhibition assay is used for the measurement of specific hemoglobin A1c. Total hemoglobin is measured by determination of released heme in the Soret region at 410 nm. The concentrations of hemoglobin A1c and total hemoglobin are determined, and their ratio is reported.
Methods: Performance testing included precision and method comparison. Assay precision was evaluated using Clinical and Laboratory Standards Institute (CLSI) guideline EP05-A3. Each sample was assayed in duplicate twice a day for 20 days. A method comparison study was conducted according to CLSI EP09-A3, with Deming regression of patient sample results compared with results from the ADVIA® 1800 Clinical Chemistry System.
Results: The precision study yielded the following results with 6 samples: sample 1 at 5.5% yielded 1.7% CV repeatability and 2.1% CV within-lab precision, sample 2 at 5.7% yielded 1.7% CV repeatability and 2.0% CV within-lab precision, sample 3 at 7.0% yielded 1.3% CV repeatability and 1.7% CV within-lab precision, sample 4 at 9.4% yielded 1.2% CV repeatability and 1.5% CV within-lab precision, sample 5 at 13.5% yielded 1.4% CV repeatability and 3.1% CV within-lab precision, and sample 6 at 14.3% yielded 1.3% CV repeatability and 2.0% CV within-lab precision.
The method comparison study yielded a regression equation of $y = 1.00x + 0.34\%$ (3.6 mmol/mol), with r of 0.994, versus the A1c_3 assay on the ADVIA 1800 system with 156 whole blood samples ranging from 2.9 to 15.1% (8 to 141 mmol/mol).
Conclusions: The Atellica CH Hemoglobin A1c_3 Assay tested on the Atellica CH Analyzer demonstrated acceptable precision. Method comparison results showed acceptable agreement with an on-market comparative analyzer.

*Under development. Not available for sale.
**The products/features (here mentioned) are not CE marked and are not commercially available. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens organization for further details.

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Obesity, Metabolic syndrome, Diabetes

Cod: W245

VITAMIN D IN PREGNANT WOMEN. RELATIONSHIP WITH OBESITY AND CARDIOVASCULAR RISK.

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INTRODUCTION
Vitamin D, essential in calcium homeostasis, has been recently involved in the prevention of cardiovascular risk. Gestational obesity and vitamin deficiency are common complications in apparently healthy pregnant women.
OBJECTIVE
To determine vitamin D levels in pregnant women with and without excessive weight gain during gestation and its relation to cardiovascular risk parameters.
MATERIAL AND METHODS
Subjects were 310 Caucasian pregnant women; 113 with insufficient weight gain, 113 with adequate weight gain and 84 with excessive weight gain during gestation according to body mass index and gestational weight gain. Fasting serum vitamin D levels and its bioavailable fraction (unbound to binding proteins) as well as a metabolic profile [glucose, insulin, lipids (total cholesterol, HDL cholesterol and triglycerides) and high-sensitivity C-reactive protein (hsCRP) were quantified in the second trimester of gestation.
RESULTS
Vitamin D deficiency (<20ng/mL) was common during gestation, accounting for 29% of women in our cohort. Lower Vitamin D levels were related to lower maternal age ($r=0.138$, $p=0.015$), and higher body mass index ($r= -0.126$, $p=0.033$), triglycerides ($r= -0.192$, $p<0.001$) and hsCRP ($r= -0.153$, $p=0.007$). In subgroup analyses, the association of vitamin D with maternal triglycerides and hsCRP levels were borderline present in women with adequate weight gain during gestation ($r= -0.175$, $p=0.063$ and $r= -0.178$, $p=0.060$) and were readily apparent in women with excessive weight gain during gestation ($r= -0.367$, $p=0.001$ and $r= -0.280$, $p=0.010$, respectively). In the latter, circulating vitamin D was independently related to triglycerides ($\beta= -0.436$, $p=0.005$) and hsCRP ($\beta= -0.309$ $p=0.036$) after adjusting for maternal age, body mass index, vitamin D binding protein and season of the year.
CONCLUSION
Lower levels of vitamin D were associated with cardiovascular risk factors in apparently healthy pregnant woman. Excessive weight gain during gestation could aggravate the metabolic and cardiovascular consequences of low vitamin levels during pregnancy.

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Obesity, Metabolic syndrome, Diabetes

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FIRST TRIMESTER PLACENTAL ANGIOGENESIS MARKERS FOR PREECLAMPSIA PREDICTION IN OVERWEIGHT AND OBESE PREGNANT WOMEN

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Background: Preeclampsia (PE) and obesity share many pathophysiological features, including oxidative stress, endothelial dysfunction, increased inflammatory activation and increased risk of later life cardiovascular disease. The angiogenesis-related biomarkers placental growth factor (PlGF) and soluble fms-like tyrosine kinase-1 (sFlt-1) are implicated in the pathophysiology of PE and have been proposed for clinical application to predict its development. However, little is known about the performance of these biomarkers in overweight and obese pregnant women. Our aim was to evaluate whether obesity impairs the performance of placental angiogenesis markers in early PE prediction and compare the effectiveness of such biomarkers in identifying those at risk of developing PE among normal and obese pregnant women at the same gestational age.

Methods: Case-control study of 500 women from a prospective cohort of singleton pregnancies that underwent first trimester aneuploidy screening in a routine care low-risk setting. Our sample included 237 women who subsequently developed PE and 263 women with normal pregnancies who were matched for gestational age at blood sampling. Participants were classified as underweight, normal, overweight or obese according to BMI at screening. First trimester serum levels of PlGF and sFlt-1 were measured by automated electrochemiluminescence immunoassay according to manufacturer's instructions (Roche Diagnostics).

Results: The study included 247 overweight/obese pregnant women, of which 156 (63.2%) had developed PE. While median sFlt-1 levels weren't significantly different, median PlGF was significantly lower in the preeclamptic group than in controls ($P<0.05$) for both overweight/obese (34.8 vs. 42.4 pg/mL) and normal/underweight women (43.2 vs. 53.6 pg/mL). Furthermore, it was observed a negative correlation between maternal weight and PlGF levels. Median sFlt-1/PlGF ratio was significantly higher among women who developed PE for the normal/underweight group (37.3 vs. 25.7, $P<0.05$), but not for the overweight/obese group (30.1 vs. 26.9, P=NS).

Conclusion: Overweight and obese pregnant women have altered first trimester placental angiogenic patterns compared with controls. Our results support first trimester PlGF as a valuable biomarker of PE in both overweight and obese pregnant women, suggesting that it can be successfully included in PE prediction models for clinical application in populations with high incidence of obesity.

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Obesity, Metabolic syndrome, Diabetes

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PREVALENCE OF PREDIABETES IN CHILDREN FROM AN ELEMENTARY SCHOOL IN SAN LUIS POTOSÍ

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Background: Type 2 diabetes mellitus and prediabetes have increased in prevalence in children, with important consequences for the long-term health. There is little evidence about the best approaches to care prediabetes in this age group. Prediabetes in children is established when serum glucose levels are not normal, higher than or equal to 5.6 mmol/L, but not sufficiently high as to be diagnostic criteria for diabetes mellitus, less than 7.0 mmol/L. The objective is to determine the prevalence of prediabetes in children from an elementary school in the city of San Luis Potosí, México.
Methods: Descriptive and analytical study. Reference materials, controls and reagents for quantification of serum glucose, by glucose oxidase method, all of Biosystems®. Data analysis was performed using Microsoft Office Excel and Epi InfoTM software.
Results: 82 children were included, aged between 6 and 12 years, with a mean of 9.2 ± 1.4 years (95% CI 8.9-9.6 years). 53.7% are men. There were no gender differences in age ($p>0.05$). The average glucose is 5.21 ± 0.36 mmol/L (95% CI 5.13-5.29). Differences exist in the distribution of glucose in men and women $p = 0.016$. The 12% of participants have prediabetes (fasting plasma glucose ≥5.6 mmol/L and less than 7.0 mmol/L), with a higher prevalence in men (15.9%) than females 7.9% ($p=0.326$).
Conclusions: In children detected with prediabetes is important to provide clinical follow-up and study how to stop the progression to type 2 diabetes, first considering changes in their lifestyle.

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Obesity, Metabolic syndrome, Diabetes

Cod: W248

HOW DOES HBCS EFFECT IN HbA1c MEASUREMENT ON 7 INSTRUMENTS?

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Background:
Several HbA1c methods included high performance chromatography (HPLC), boronate affinity chromatography (BAC), immunoassay, and enzymatic methods, all which are common in most laboratories.
HbCS is commonly found in Thailand and around South East Asia regions. There still lacks sufficient clinical evidence on the impact of HbCS on these methods.
Materials and Methods:
Total one hundred and five samples with normal glucose (67 samples with normal hemoglobin typing and 38 samples with confirmed HbCS variant) were obtained from Central Laboratory, Department of Clinical Pathology, Siriraj Hospital. All sample were analyzed on an immunoassay chemistry analyzer - Integra 800 (Roche Diagnostics, Thailand), two enzymatic assay analyzers-Architect C8000 (Abbott, Thailand), and BS-800 (Mindray Medical International Ltd., China), two cation exchange chromatography analyzers - Tosoh HCL -723 G8 (Tosoh Corporation, Japan) and ADAMS A1c HA-8180V (ARKRAY Inc., Japan), a boronate affinity chromatography analyzer -Premier Hb9210 (Trinity Biotech Plc., Ireland), and a fluorescence immunoassay- Wondfo FIA II (Wondfo Biotech Co,.Ltd., China).
Results:
The means HbA1c value of normal participants in all methods were 5.32±0.47%, 5.13±0.4%, 4.82±0.37, 5.17±0.43%, 5.35±0.4%, 5.25±0.44%, and 5.05±0.84% (Integra 800, Architect C8000, BS-800, HCL-723 G8, HA-8180V, Premier Hb9210, and Wondfo FIAII), respectively. The means of HbA1c results of HbCS participants in all methods were 3.68±0.77%, 3.93±0.58%, 4.69±0.6, 4.3±1.62%,4.3±0.87%, 5.58±1.32%, and 2.13±2.18% (Integra 800, Architect C8000, BS-800, HCL-723 G8, HA-8180V, Premier Hb9210, and Wondfo FIAII), respectively.
The percentage of difference (more than 6%) was clinical significant amongst normal and HbCS samples and amongst analyzers that found in all instruments. Eighteen samples were not detected HbA1c levels on Wondfo FIAII. No peak of HbA1c was found in 1 sample on HA-8180V analyzer, and 4 samples on HCL-723 G8 analyzer. Interestingly, very high results were detected in 10 samples on Premier Hb9210 analyzer, and in 1 sample on BS-800.
Conclusion:
HbCS may produce unusual low or high results on enzymatic, boronate affinity chromatographic and fluorescent immunoassay methods, whereas on immunoassays and high pressure liquid chromatographic methods may also be influenced due to underestimation. Additional studies are required to determine the actual cause of interference.

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Obesity, Metabolic syndrome, Diabetes

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INVERSE CORRELATION BETWEEN SERUM BONE MORPHOGENIC PROTEIN-4 AND HIGH SENSITIVE C-REACTIVE PROTEIN IN OBESE MALE

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BACKGROUND:
The prevalence of obesity is increasing in many parts of the world, including Indonesia. The reframing of obesity as an inflammatory condition has had a wide impact on the conceptualization of obesity-associated disease. BMP4 is a growth factor of the transforming growth factor-β superfamily. Initially, BMPs were identified as inducer of ectopic bone formation. Recent in vitro study on cultured human adipocytes have highlighted the important roles of BMP4 in the regulation of adipogenesis as an anti-inflammatory. However the correlation between is serum BMP4 and inflammation in adult obese is unknown yet. The objective of this study was to evaluate the correlation between common inflammation marker, serum hs-CRP and BMP4 in obese male

METHODS
A total of 80 obese adult male subjects were included in the present study, out of which 33 were non metabolic syndrome (nonMetS) and the remaining 47 were metabolic syndrome, age range from 31 to 60 years old. Serum BMP4 and TNFα concentrations were quantified by ELISA principle. Serum hsCRP were quantified by immulite2000 (DPC cat L2KCRP-2). All assays were performed according to the manufacture instruction. Statistical analysis was performed with SPSS for windows ver 20. Significance value were define as alpha level< 0.05 based on two-tailed tests.

RESULTS
The mean serum hsCRP levels which were higher in obese MetS group (2.69 mg/l) compared to obese nonMetS group (1.89 mg/l). However, inverse results were seen for mean levels of serum BMP4 in obese MetS is lower (470 pg/ml) as compared to obese nonMetS group (613 pg/ml). Bivariate analysis (n=80) revealed that serum BMP4 was inversely correlated with hsCRP, TNF-α, triglyceride, blood fasting glucose. A significant inverse correlation were found between serum BMP4 and hsCRP (r=-0.277; p=0.013).

CONCLUSION:
In conclusion, this study provides evidence that in obese men serum BMP4 inversely correlated with hsCRP. This finding demonstrate the importance of BMP4 as an anti inflammatory protective factor of obesity-related diseases. Further study is needed to validate that BMP4 may serve as a therapeutic target for intervention in the control of metabolic disease.

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Obesity, Metabolic syndrome, Diabetes

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THE HELP CRYSTALLURIA IN PREVENTION OF LITHIASES IN DIABETIC PATIENTS

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Introduction

The alarming increase in cases of diabetes in Algeria, particularly during the last 15 years encourage practitioners turn seriously to the study of this scourge. The prevalence of nephrolithiasis in the diabetic population was recently estimated at 21%, more than double the prevalence of gallstones in the general population. Because crystalluria is the intermediate step between urinary biochemical abnormalities and training calculation. It can therefore help identify lithogenic risk factors or metabolic abnormalities, genetic or otherwise, that promote nephrolithiasis.

Our work has focused on checking whether diabetic patients had Crystalluria particular, which could help detect this risk and to propose Therapeutic measures to prevent stones.

Materials and methods

This is a prospective study of diabetes type 1 and 2;The first urine of the Wake 72 diabetic patients were examined by polarized light microscopy to locate and identify possible crystalluria. The results are expressed in the majority crystalline species.

Results

This study focused on a population of 72 diabetic patients, divided into 66.67% women and 33.33% men with a sex ratio (M / F) of 0.50, Frequency Global Crystalluria was 69.44% with gender differences: 20/24 urineor 83.33% in men and 30/48 urine, 62.5% in women. The results our study shows that the average pH of the urine of diabetic patients was 72 pH 5.45 ± 0.48 that is to say acid significantly.

Diabetics have an acid urine pH which further lowers with age, which promotes dihydrate calcium oxalate crystalluria, particularly frequent humans.

The diagnosis of crystalluria is based not only on clinical criteria,but also on biochemical criteria, primarily urinary calcium. assay

This parameter gives an average of 378.54 ± 127.73 mg / l in men and 362.47 ± 74.97 mg / l in women.

Conclusion

The study of crystalluria is an essential resource for etiological diagnosis and medical management. It should therefore be practiced in all laboratories to enable better detection of risk factors and more effective monitoring of nephrolithiasis diabetes.