Obesity

Cod: 1226

EFFECTS OF OBESITY PARAMETERS ON GESTATIONAL DIABETES IN HUMAN

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BACKGROUND: Gestational diabetes is a type of hyperglycemia which may cause of fetal mortality. Recent studies have established that parameters of obesity have effects on gestational diabetes. We have explored obesity related immune parameters in serum of Gestational Diabetes Mellitus diagnosed patients.

METHODS: Blood serum samples of fourty-nine pregnant women with GDM and tweny-eight healty pregnant were used in this study. Serum levels of Leptin, Resistin, CD40L, TNF-R (Tumor Necrotising Factor Receptor), OPG (Osteoprotegerin), MCP-1 (Monocyte Chemoatrractant Protein), MPO (Myeloperoxidase), ICAM-1 (Intercellular Adhesion Molecule)) were measured by flow cytometry using a bead based method.

RESULTS: OPG levels were significantly higher in GDM than in controls (66.31±352.50 vs. 8.24±5.71 pg/ml, p=0.11). Leptin (18.02±6,87 vs. 14.78±8.90 ng/ml, p=0.31). TNF-R levels were also increased (0,87±0,26 vs. 0,66±0,24 ng/ml, p=0.92). MCP-1 (1183.38 ±1148.71 vs. 1011.27±739.61 pg/ml, p=0.84) and MPO (219.27±86.43 vs. 199.23±54.93 ng/ml, p=0.075), ICAM-1 (465.76±245.75 vs. 409.39±175.94 ng/ml, p=0.31), CD40L (1704.99±1143.99 vs. 1668.78±790.12 pg/ml, p=0.28) were slightly higher in GMD than in controls. However levels of resistin were decreased (619.34±556.72 vs. 4802.50±2527.01 pg/ml, p=0.000) in GMD in comparison to controls.

CONCLUSIONS: In our study,we have found decreased levels of resistin which is contradictory to some of other studies. Due to variation of study models, intra/inter-individual differences and measurements at different times with different methods may have an effect on these contradictory results. We have found high OPG levels which is in conformance with previous animal studies that mRNA resistin levels is down regulated while OPG is upregulated by high eostrogen hormon levels. Both resistin and OPG are thought to have a role in glucose metabolism signaling pathways that needs to be explored in future studies.

Obesity

Cod: 1227

ASSOCIATION OF SERUM RESISTIN LEVEL AND INSULIN RESISTANCE IN COMPARISON STUDY BETWEEN OBESE AND NON-OBESE SUBJECTS

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BACKGROUND: Resistin is an adipocyte-derived peptide that is involved in the development of obesity and insulin resistance (IR) in mice and may play a similar role in humans through mechanisms that remain unresolved. The aim of this study was to determine resistin levels in obese and non-obese subjects and evaluate their association with anthropometric parameters and insulin resistance.

METHODS: The study included 110 obese and 90 non-obese subjects. Fasting glucose, HDL-cholesterol (HDL-C), triglycerides (TG), total cholesterol (TC), LDL-cholesterol (LDL-C), resistin and antropometric parameters were measured. Homeostasis model assessment of insulin resistance (HOMA-IR) was calculated.

RESULTS: Serum resistin levels were higher in non-obese group when compared to the obese group ($p<0.001$). Additionally, plasma glucose, total cholesterol, triglycerides and LDL-cholesterol levels were significantly higher in obese subjects ($p<0.001$) but they had significantly lower mean HDL-cholesterol ($p<0.001$) levels. Non-obese subjects had significantly lower HOMA-IR compared to obese subjects ($p<0.001$). In obese subjects, resistin levels were significantly correlated with waist circumferences ($p<0.05$). A significant correlation was observed between resistin level and hip circumference in non-obese group ($p<0.05$). Resistin was significantly correlated with HOMA-IR in obese group ($p<0.05$).

CONCLUSIONS: Resistin levels were elevated in obese subjects and were associated with insulin resistance. These results in accordance with the previous similar studies in literature, indicate that resistin might be a possible candidate factor in obesity-related insulin resistance.

Obesity

Cod: 1228

USEFULNESS OF ELF TEST AS PREDICTOR OF STEATOHEPATITIS AND LIVER FIBROSIS IN OBESE PATIENTS UNDERGOING BARIATRIC SURGERY

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BACKGROUND: The prevalence of Non alcoholic fatty liver disease (NAFLD) is 70% in obese patients. There is a wide spectrum of liver histology in NAFLD, ranging from steatosis to steatohepatitis (NASH), fibrosis and cirrhosis. Steatosis usually remains stable without complications but patients with NASH or fibrosis have a higher risk for cirrhosis, portal hypertension and hepatocarcinoma. Liver biopsy is the standard for the diagnosis of NAFLD but has risks and limitations, so that non-invasive diagnostic tools such as serum biomarkers and imaging methods have been developed. ELF is a diagnostic algorithm of liver fibrosis that combines three serum direct markers: hyaluronic acid (HA), procollagen III amino terminal peptide (PIIINP) and tissue inhibitor of metalloproteinase 1 (TIMP-1). The result becomes a score without units that indicates the level of fibrosis. Acoustic Radiation Force Impulse (ARFI) is a imaging technique that provides a quantitative measure of the tissue elasticity and correlates with the degree of fibrosis. We aimed to assess feasibility of ELF to differentiate NAFLD from NASH and fibrosis in morbidly obese before bariatric surgery using liver biopsy as a reference standard.

METHODS: We selected 55 morbidly obesity patients who were to undergo bariatric surgery and were classed according to their biopsy findings into two groups: group A, normal liver or simple steatosis (n=27); group B, inflammation and/or fibrosis (n=28). All the patients were evaluated with ARFI (Acuson S2000, Siemens ®) before surgery and ELF test (ADVIA Centaur, Siemens®) was calculated.

RESULTS: ELF results obtained from each group were: A [8,34±0,72]; B [8,99±0,75]. Significant differences between groups ($p<0.005$) were found. The area under the ROC curve for differentiating patients NASH or fibrosis from those with normal liver or simple steatosis using ELF was 0,741. The cut-off value was 8,72 (71,4% Sensitivity; 74,1% Specifity). Furthermore ELF was significantly correlated with ARFI results ($r=0,285$ $p<0.05$).

CONCLUSIONS: A proper hepatic assessment enabling NAFLD to be differentiated from NASH or fibrosis would be fundamental for establishing a risk population. Our results show that ELF is a useful diagnostic tool for differentiating this in morbidly obesity patients.

Obesity

Cod: 1229

RELATIONSHIPS OF CIGARETTE SMOKING AND/OR ALCOHOL INTAKE AND VISCERAL ADIPOSITY INDEX IN HEALTHY ADULT MEN

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BACKGROUND: We aimed to investigate the relationships of smoking and/or alcohol intake and visceral adiposity index (VAI) in healthy adult men in this study.

METHODS: For this purpose 160 healthy adult men were included to the study and divided into four groups; 91 both non-smokers and non-drinkers (Group NSNA), 34 smokers (Group S), 10 drinkers (Group A) and 25 both smoker and drinker (Group SA). Serum concentrations of triglyceride and HDL-C and waist circumference were measured, then body mass index and VAI were calculated.

RESULTS: VAI and triglyceride (TG) were significantly higher and HDL was significantly lower in Group SA and HDL was significantly lower in Group S, when compared to Group NSNA. Body mass index, VAI, waist circumference and TG were significantly higher and HDL was significantly lower in Group SA than in Group S. VAI and TG were significantly higher and HDL was significantly lower in Group A than in Group NSNA. There was no significant correlation between smoking pack-years and VAI.

CONCLUSIONS: The rise of VAI is associated with both alone alcohol intake and smoking and alcohol intake together. In case of absence of both smoking and alcohol intake, VAI may decrease, however non-elevated VAI may be associated with smoking.

Obesity

Cod: 1230

ASSOCIATION OF ADIPOQ AND ADIPOR2 POLYMORPHISMS WITH SERUM LEVELS OF ADIPONECTIN MULTIMERIC FORMS AND ADIPOSITY IN MEXICAN-MESTIZO WITH INSULIN RESISTANCE

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BACKGROUND: Insulin resistance (IR) development is the result of interaction between environment factors and predisposition genes. An important consideration is whether adipocytokines such as adiponectin (ADIPOQ), is a potential mediator of insulin sensitivity. The aim of this study was to determinate the interaction between ADIPOQ and its receptor 2, ADIPOR2 polymorphisms as well as, their association of serum levels of total adiponectin and multimeric forms, and adiposity in Mexican-Mestizo with IR.

METHODS: In this cross-sectional study, 183 individuals characterized as IR in accordance with Stern criteria were included. Anthropometric measurements, body composition, body fat distribution and inflammation and metabolic markers were measured by routine methods, ADIPOQ (-11391 G/A, and 45 T/G) and ADIPOR2 (rs767870 A/G) alleles were identified by PCR-RFLP. Soluble insulin and adiponectin multimeric forms (high-molecular weight (HMW) multimers, medium-molecular weight hexamers (MMW), and low-molecular weight (LMW) trimmers) were measured by ELISA methods.

RESULTS: We found: correlations of insulin levels and HOMA-IR with total body fat and waist circumference (r= 0.48 to 0.60 P< 0.05); and associations of 1) ADIPOQ -11391 A- phenotype with glucose (A- = 86.7 ± 9.4 versus A+ = 79.8 ± 10.47 mg/dL; P = 0.023), HOMA-IR (A- = 1.44 ± 0.932 versus A+ = 1.06 ± 0.505; P = 0.039), and sAdipoQLMW (A- = 1.1 ± 0.61, A+ = 1.3 ± 0.39 µg/dL; P = 0.028), 2) 45T/G polymorphism with triglycerides (T/T= 169.6 ±81.30, T/G= 154.4 ± 79.63 and G/G= 96.0 ±27.25 mg/dL; P= 0.022) and 3) G+ phenotype of rs767870 A/G with triglycerides levels (A/A = 207.1 ± 51.37, G/A x= 159.1 ± 31.40 mg/dL; P= 0.036) and sAdipoQMMW (G- x= 0.9 ± 0.39, G+ x= 1.5 ± 0.70 µg/dL; P= 0.007). It was not observed linkage disequilibrium in haplotypes analysis, but we observed difference (P= 0.041) in its proportion in IR group against control group. The combination of genotypes -11391G/G//45T/T//rs767870A/A was determined as low risk by MDR analysis.

CONCLUSIONS: Polymorphisms were associated with variations in serum levels of adiponectin multimeric forms and triglycerides. The presence of at least one polymorphic allele is a risk factor for IR establishment

Obesity

Cod: 1231

ASSOCIATION OF SERUM C3 WITH THE AMOUNT AND DISTRIBUTION OF ADIPOSE TISSUE IN OBESE SUBJECTS

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BACKGROUND: Obesity it is characterized by a chronic subclincal inflammatory process and by dysregulation in the secretory functions of the adipose tissue, both processes are secondary to the excessive and irregular accumulation of this tissue. The production and secretion of the complement C3 component by adipose tissue could be affected by obesity and related to the amount and distribution of adiposity, also it may be related to comorbidities present in obesity. Objective: To determine the association between of serum levels of C3 with adiposity in individuals with obesity.

METHODS: In a cross-sectional study, we enrolled 198 subjects that were classified by body mass index (BMI) according to WHO criteria in normal weight, pre-obese and obese. The body composition was evaluated by electric bio impedance analysis (BIA). Subcutaneous fat was measured by plicometry according to Durnnin 1967. Serum glucose, insulin, and C3 were measured with the Analyzer Clinical Chemistry-Turbidimetry A25. The HOMA-IR was calculated.

RESULTS: We observed significant differences (P<0.05) in the serum C3 levels (mean ± standard deviation) among obese, pre-obese and normal weight individuals: 284.8 ± 11.7, 239.7 ± 11.8 y 180.3 ± 6.3 mg/dL and hs-CRP: 5.4 ± 5.0, 2.5 ± 3.3, 1.0 ± 1.3 mg/L, serum insulin: 13.29 ± 7.93, 7.29 ± 4.15 and 4.46 ± 3.35μUI/mL. We also found significant Pearson's correlations (P< 0.001) between C3 and BMI (r= 0.512), fat mass (%, r= 0.445), subscapular and suprailiac skinfold thickness (mm, r 0.490 and 0.421), serum insulin (μUI/mL, r= 0.535), HOMA-IR (r= 0.540) and hs-CRP (mg/L, r=0.468).

CONCLUSIONS: Our results suggests that serum C3 it is proportional to the amount of adipose tissue in obese individuals and also that it is correlated with insulin resistance. Also serum C3 is related to adipose tissue in the upper half of the body and to chronic subclinical inflammation in Obesity.

Obesity

Cod: 1232

RELATIONSHIP BETWEEN CCR2 64VAL>ILE GENE WITH SERUM CCL2 LEVELS IN OBESE MEXICAN-MESTIZO POPULATION

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BACKGROUND: Obesity is a complex disease with multifactorial etiology and genetic susceptibility characterized by a systemic low-grade inflammatory state. CCR2 gene has been proven to play an important role in the pathogenesis of obesity. The aim of this study was to investigate the relationship between CCR2 64Val>Ile gene simple nucleotide polymorphism (SNP, rs1799865) with serum levels of CCL2 (sCCL2), distribution of body fat storage and inflammatory markers in Mexican-mestizo individuals.

METHODS: In this cross-sectional study, we recruited 380 individuals from Western of Mexico characterized as Mexican-Mestizo that were classified by body mass index (BMI), according to WHO criteria. Anthropometric measurements, body composition, body fat distribution, and inflammatory markers were measured by routine methods. Genotypes were characterized using the polymerase chain reaction sequence-specific primers (PCR-SSP) technique and a sCCL2 level was measured by the ELISA. A P-value 0.05 was considered the statistically significant threshold.

RESULTS: The CCR2 64Ile+ phenotype was significantly more frequent in overweight individuals (41%) compared to lean individuals (30%) (P= 0.0313). The detailed analysis showed association of 64Ile/Ile genotype with sCCL2, while erythrocyte sedimentation rate (ESR) show association with 64Ile+ phenotype. sCCL2 correlates with total cholesterol and distribution of abdominal fat storage (Pearson's r = 0.21 to 0.28, P< 0.05).

CONCLUSIONS: The present data suggests that the CCR2 64Ile allele could impact the distribution of body fat in obesity, based on the association between CCR2 64Val>Ile gene polymorphism and overweight. Besides, the sCCL2 levels correlated with obesity features such as cholesterol and abdominal fat. Taking all together, the CCR2 polymorphism could be involved in the susceptibility to obesity and inflammation in Mexican-mestizo population.

Obesity

Cod: 1233

ASSOCIATION OF CD5 LIKE-ANTIGEN (CD5L), FREE FATTY ACIDS (FFA) LEVELS AND ADIPOSITY DISTRIBUTION IN OBESE SUBJECTS

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BACKGROUND: In obesity, the adipose tissue is infiltrated by classically activated macrophages that secrete CD5L, this molecule stimulates altered lipolysis in the adipocyte by CD36 uptake, this process enhances the release of FFA, which perpetuate an inflammatory process in the adipose tissue resident macrophages. The interaction between these cells could explain some of the metabolic changes observed in obesity. The aim of this study was to evaluate serum levels of CD5L and FFA (reported as palmitic acid) in subjects with obesity.

METHODS: In this cross-sectional study we recruited 44 subjects who were clinically evaluated and classified as normal weight, pre-obese and obese by body mass index according to WHO criteria. Anthropometric measurements, five skin-fold thickness (triceps, biceps, subscapular, suprailiac, and abdominal), body composition and body fat distribution were measured by routine methods. Total CD5L (tCD5L) and free (fCD5L) were determined by ELISA and serum levels of FFA by a colorimetric assay.

RESULTS: The levels (mean ± standard deviation) of tCD5L were (141.8 ± 41.6, 156.3 ± 100, 83.9 ± 56.7 µg/mL), fCD5L (1871.7 ± 445.2, 1663.5 ± 352.9, 1608.0 ± 399.5 ng/mL) and FFA (52.9 ± 29.6, 56.0 ± 40.4, 73.4 ± 32.8 nmol/L) in normal, pre-obese and obese subjects, respectively. The analysis of the mean levels of tCD5L showed differences between subjects with normal weight vs obese (P= 0.008) and pre-obese vs obese subjects (P= 0.031). The levels of fCD5L correlates negatively with FFA (Pearson´s r= -0.393, P= 0.008,) and the tCD5L levels with anthropometric measurements as thorax adiposity, skinfold thickness (suprailiac, suprascapular and the sum of 5 skinfold thickness), waist circumference and waist-hip ratio (Pearson´s r= -0.451 to -0.320, P=0.044 to 0.004).

CONCLUSIONS: The levels of total and free fraction of CD5L in obese subjects were decreased in comparison to normal subjects. Nevertheless, the low level of the fCD5L correlates with increase of FFA levels and body fat accumulation preferentially in abdominal area. These results suggest that CD5L possibly will influence the morbidity development in obesity.

Obesity

Cod: 1234

PARATHYROID HORMONE IS ASSOCIATED WITH VISCERAL ADIPOSITY IN AFRICANS

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BACKGROUND: PTH has been associated with increased cardiovascular risk even when concentrations are within the normal reference ranges. Several factors influence PTH concentrations including age, 25(OH)D concentrations, renal function, dietary calcium, body mass index (BMI) and adiposity. The aim of this study was to examine whether PTH correlated with visceral or subcutaneous adiposity in healthy African and Asian Indian subjects. Design: Cross sectional study in 371 Black African and 343 Asian Indian (age range 18-65)

METHODS: PTH was measured by chemiluminescent immunoassay and 25(OH)D by HPLC. Subjects with known renal diseases or liver disease were excluded from the study. Abdominal visceral and subcutaneous adiposity was determined by ultrasound and whole body fat by DXA. Multiple regression models were created to determine if serum intact PTH correlated with BMI, body weight, lean mass, total fat, visceral or subcutaneous adipose tissue thickness after adjusting for age, gender, serum calcium, serum phosphate and 25(OH)D.

RESULTS: PTH was slightly higher in Asian Indian than African subjects but this difference failed to reach statistical significance (p=0.06). PTH was significantly higher in Black African females (median 5.30; CI 3.60-6.90 pmol/L) compared with Black African males (4.60 (3.60-6.40) p=0.0002). It was also higher in Asian Indian women (5.00 (3.70-7.20)) compared with Asian Indian men (4.60 (3.60-6.40)) but this was not statistically significant (p=0.09). Using multivariate regression analysis PTH was positively associated with age (p<0.0001) and negatively associated with 25(OH)D (p<0.0001) in both groups of subjects. Total body fat was positively correlated with PTH in Asian Indian subjects (ß=0.09, p<0.0001) whilst visceral adipose tissue thickness was positively correlated with PTH in Black African subjects (ß=0.02, p<0.0001).

CONCLUSIONS: This study demonstrates a differential relationship between PTH and body anthropometry in Black African and Asian Indian populations. Further studies are required to determine whether the association of PTH with cardiovascular disease is mediated by its relationship with body adiposity.

Obesity

Cod: 1235

THE ROLE OF ADIPOKINES AND GUT HORMONES IN THE PATHOGENESIS OF OBESITY, AND RECENT FINDINGS FOR THE FUTURE TREATMENT OF OBESITY

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BACKGROUND: Obesity has become one of the leading public health concern. Over one billion people are overweight or obese and the prevalence of these conditions is growing constantly. This review presents an overview of the endocrine functions of adipose tissue, the role of gut hormones and their associated neuronal networks (the gut-brain axis) in appetite control.

METHODS: Recent studies have improved our understanding of energy homeostasis by identifying sophisticated neurohumoral networks that transmit signals between the brain and gut to control food intake. Key adipokines, such as, leptin, adiponectin, interleukin-6, plasminogen activator inhibitor-1, resistin, tumor necrosis factor-α, adipsin and acylation stimulating protein, macrophages and monocyte chemoattractant protein-1, plasma renin, plasma angiotensin - converting enzyme and angiotensinogen linked with pituitary neuropeptide system began to clarify.

RESULTS: Gut hormones, such as, cholecystokinin, ghrelin, peptide YY, pancreatic polypeptide, glucagon-like peptide-1, oxyntomodulin, ghrelin, insulin, glucagon, obestatin, amylin are modulated by acute food ingestion.

CONCLUSIONS: This article highlights some of the recent findings and their implications for the future treatment of obesity, but there are currently no effective pharmacological interventions for obesity.

Obesity

Cod: 1236

ADIPOCYTOKINES' (PROGRANULIN, GRANULIN, AND ADIPONECTIN) DYNAMIC EXPRESSION PATTERN RELATED TO METAFLAMMATION (HS-CRP) AND WAIST CIRCUMFERENCES IN INDONESIAN MEN

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BACKGROUND: Obesity is closely related to chronic, low – grade systemic inflammation (metaflammation) and leads to further metabolic complications such as hypertension, atherosclerosis, and type 2 diabetes due to the adipocytokines imbalance. This study was carried out to assess the correlation between progranulin, granulin, and adiponectin with metaflammation (hs-CRP) in central obese men.

METHODS: This was an observational study with a cross sectional design involving 60 men aged 30 – 60 years, consisted of 43 obese men (waist circumference (WC) ≥ 90 cm) and 13 non obese men (WC <90 cm). Anthropometric parameters, blood pressure, GFR, creatinine, ALT, AST and hs-CRP levels were measured. Serum concentrations of progranulin, granulin, and adiponectin were measured by ELISA.

RESULTS: This study showed a non-significant correlation between hs-CRP and progranulin (r=0.048; p=0.758), granulin (r= -0.223; p=0.150), and adiponectin (r= -0.121; p=0.439) in obese men. Interestingly, we found a dynamic pattern of adipocytokines level related to WC. The adipocytokines level were increased (hs-CRP) or decreased (progranulin, granulin, and adiponectin) in subjects with WC 80 – 86 cm; then subsequently tended to level off between WC 86 – 105 cm; then showed increased or decreased level again in WC > 105 cm.

CONCLUSIONS: We found a not – significant positive correlation between progranulin, granulin and adiponectin with metaflammation (hs-CRP) in central obese men. We suggest the possibility of a dynamic expression of pro- and anti-inflammatory adipocytokines related to WC that are subjected to the role of adipocytes hypertrophy – hyperplasia phenomenon.

Obesity

Cod: 1237

ASSOCIATION OF CHEMERIN AND RESOLVIN E1 LEVELS WITH ABDOMINAL OBESITY AND ADIPOSITY INDEXES

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BACKGROUND: Abdominal obesity is a systemic inflammatory disease; increase of the adipose tissue is the most visible manifestation. Chemerin is a pro-inflammatory protein, which regulates adipocyte development and metabolic function. However, substances like resolvin E1 (RvE1) promote in a favorable way the inflammation resolution and besides act as modulator in the inflammatory reaction of the obesity. The aim was to investigate the relationship between chemerin and RvE1 levels with fat distribution on the basis of adiposity indexes.

METHODS: In this cross-sectional study, we recruited 204 individuals that were classified with or without abdominal obesity, according to WHO criteria. Anthropometric measurements, body fat distribution, body composition, serum glucose and lipids profile were measured by routine methods. Abdominal adipose depot was assess by anthropometric indexes [visceral area index (VAI), total adipose area (TAA), subcutaneous area (SA), abdominal volume index (AVI)], and a RvE1, Chemerin and insulin levels were measured by the ELISA.

RESULTS: Chemerin levels in abdominal obese individuals were higher than those in individuals without abdominal obesity (x=75.4±20.0 vs x=63.4±15.4 pg/mL; P=0.036). Whereas, RvE1 levels no shown differences (x=1.01±0.73 vs x=0.91±0.82 μg/mL). RvE1 and chemerin levels correlates with total body fat, lower and upper limb fat mass, and thorax fat mass (Pearson's r=0.392 to 0.225, P=0.0001 to 0.036). While chemerin levels correlates with VAI, serum triglycerides and VLDLc (Pearson's r=0.235, P= 0.030; r=0.264, P=0.013 and r=0.264, P=0.013, respectively). On the other hand, RvE1 levels correlates with: 1) serum total cholesterol, LDLc, basal insulin and HOMA-IR (Pearson's r=0.214, 0.240, 0.201 and 0.194, P=0.012, 0.005, 0.019 and 0.023, respectively); and 2) with distribution of abdominal fat storage: TAA r=0.181, P=0.035; SA r=0.227 P=0.018; AVI r=0.182 P=0.034 and triceps, biceps and suprailiac skinfold (Pearson's r=0.308, 0.267 and 0.202 P<0.001).

CONCLUSIONS: In this study, we have suggested that the RvE1 levels could be associated with distribution of body fat storage in abdominal obesity. The dual role of chemerin in inflammation and metabolism might provide a link between chronic inflammation and obesity.

Obesity

Cod: 1238

GENDER DIFFERENCE IN LEPTIN AND ADIPONECTIN PRODUCTION IN OBESE CHILDREN

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BACKGROUND: Obesity is a major problem in the modern society associated with culture of living and nutrition. Leptin and adiponectin are two hormones that are produced in the fat tissue. Leptin reduces food intake and increase energy expenditure while adiponectin is related with cardiovascular protection. The concentrations of serum leptin and adiponectin depends of ethnicity, gender and age. Therefore they are manly biochemical markers related to the obesity.

METHODS: The influence of the gender on serum leptin and adiponectin levels was examined on 104 obese children (56 boys, 48 girls) with Body mass index (BMI) 30.5±6.1 kg/m^2 and control group of 49 healthy children (24 boys, 25 girls) with BMI 16.7±2.6 kg/m^2. Leptin and adiponectin concentrations were measured with Enzyme-Linked Immunosorbent Assay (ELISA) method.

RESULTS: The leptin levels in obese girls were 33.48±15.8 ng/ml and were significantly higher compared to the obese boys 26.11±12.5 ng/ml (p=0.011). Higher levels for leptin were found in the healthy girls 5.7±2.7 ng/ml than in healthy boys 4.9±2.4 ng/ml, (p>0.05) as well as in the control group. The adiponectin level was lower in obese children. In girls adiponectin was 9.1±3.5 μg/ml in obese vs. 12.28±4.3 μg/ml in controls and adiponectin in boys 8.1±3.3 μg/ml in obese vs. 11.33±4.1 μg/ml in controls (p>0.05). However there was no statistical difference of adiponectin levels between boys and girls in both groups.

CONCLUSIONS: There is a gender difference in production of leptin in obese children. Higher levels of leptin detected in females is result of their anatomic structure and the subcutaneous fat tissue. Lower leptin levels in boys can be explained with reducing leptin secretion by testosterone. Measuring of adiponectin level allows early protection of cardiovascular disorders like side effects of obesity.

Obesity

Cod: 1239

EFFECTS OF CURCUMIN INTAKE ON FATTY LIVER IN HIGH FAT DIET FED RATS

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BACKGROUND: Long term high fat diet (HFD) intake causes lots of metabolic disorders and a major risk factor for non-alcoholic fatty liver. Curcumin (Cur) is a well-known compound of traditional turmeric "Curcuma longa" which has been shown to display antioxidative, anticarcinogenic, anti-inflammatory and hypocholesterolemic effects. The aim of this study was to evaluate the effects of curcumin treatment on liver fat accumulation and prooxidant-antioxidant status in an experimental high-fat diet fed rat model.

METHODS: Male Sprague-Dawley rats were divided into four (n=8/group) groups. Group 1 (Control) was fed with control diet (10 % of total calories from fat), Group 2 (HFD) was fed with HFD (60 % of total calories from fat), Group 3 (HFD+Cur) was fed with HFD including 1g curcumin/kg HFD, Group 4 (Cur) was fed with control diet including 1g curcumin/kg. All rats were fed for 16 weeks. Liver ROS levels were measured by the flourometric method, cholesterol and trigliseride levels by commercial kits, heme oxygenase (HO-1) expression by western blotting method, malondialdehyde (MDA), dien conjugate (DC) levels and glutathione peroxidase (GPx), superoxide dismutase (SOD) and glutathione transferase (GST) activities by spectrophotometric methods, serum biochemical parameters by autoanalyzer.

RESULTS: Trigliseride levels were higher in HFD group than control group. Curcumin suplemantation with HFD significantly decreased trigliseride levels. Feeding with HFD did not show any significant differences for cholesterol, ROS and MDA levels. ROS levels were significantly lower in Cur group than control group. DC levels, SOD, GPx and GST activities and HO-1 expression were not changed.

CONCLUSIONS: Our results indicate that, curcumin treatment prevents liver against fat accumulation and has preventive effects on oxidant status but these effects are not enough strong to stimulate antioxidant status.

Obesity

Cod: 1240

EFFECT OF CAPARIS SPINOSA L. EXTRACT ON ACUTE-PHASE PROTEINS AND TRACE ELEMENTS LEVELS IN RATS WITH FED HIGH LIPID DIET

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BACKGROUND: Caparis spinosa L. is a species from Capparidaceae family of which buds, fruits and root basts are used as painkiller, diuretic, wound healer and cell renewal in 1-3 % infusion form. In this study, investigation of the effects of Caparis spinosa L. extract; on serum C-reaktif protein, haptoglobin, seruloplasmin, copper, iron and zinc levels of female rats which are fed with high lipid diet is aimed.

METHODS: In this study, we used 40 female Wistar rats weighing 250-300 grams. Four group were formed each containing 10 rats. Group 1 (control group) was fed with standart food. Group 2 and 3's food includes high level of vegetable oil (2% liquid and 5% hydrogenated) and (3%) cholesterol. Caparis spinosa L. extract (500 mg/kg/day dosage) was given to rats for four weeks in group 3 and 4 via gavage. Blood samples were collected from rats on the 32th day of the study.

RESULTS: It was determined that haptoglobin levels were nonsignificant increased in group of Caparis spinosa L. ($p>0.05$). Seruloplasmin levels of groups which both fed with high lipid diet and Caparis Spinosa L. were increased significantly when compared with control group ($p<0.05$). It is observed that, iron and zinc levels were increased with high lipid diet and decreased with addition of Caparis Spinosa L. but it was not significant ($p>0.05$). Copper levels were increased in groups of fed with high lipid diet and Caparis spinosa L. but it was not significant ($p>0.05$).

CONCLUSIONS: As a result of this study, Caparis Spinosa L. extract application caused to increase of serum seruloplasmin concentrations in rats fed with high-fat diet but it is not effected to C-reaktif protein, haptoglobin and trace element levels.
Key Words: High Lipid Diet, Caparis Spinosa L., Acute-Phase Proteins, Trace Elements

Obesity

Cod: 1241

EVALUATION OF CIRCULATING ADIPOKINE LEVELS IN HIGH FAT DIET-INDUCED C57BL/6J OBESE MICE WITH LUMINEX SYSTEM

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BACKGROUND: Obesity is a multifactorial disease characterized by the excessive accumulation of fat in adipose tissue and peripheral organs. Adipose tissue is known to secrete multiple bioactive substances, called adipokines, that can contribute to the development of obesity-associated complications. The aim of this study was to determine whether the circulating adipokine profiles differs between low and high fat diet-induced C57BL/6J obese mice.

METHODS: In the present study, C57BL/6J mice were divided into three group: Control group (20 mice) was fed with 10 % kcal/fat additive purified feed (low-fat diet), whereas the experimental group1 (20 mice) was fed for 3 months with 60 % kcal/fat additive purified feed (high-fat diet) and experimental group 2 (20 mice) was fed for 6 months with 60 % kcal/fat additive purified feed (high-fat diet). Serum concentration of adipokines (Amylin, Ghrelin, Resistin, Leptin and Adiponectin) were measured at baseline, after 3 and 6 months of high-fat diet by flowmetric xMAP technology (Luminex Multi-Analyte Profiling System).

RESULTS: Our data showed that serum levels of amylin, ghrelin, resistin, leptin and adiponectin was higher in high fat diet-induced obese mice compared to control group. Additionally, we compared serum concentration of adipokines between experimental groups. Amylin and ghrelin levels was higher in experimental group 2 than group 1. However, leptin and resistin levels was lower in experimental group 2 than group1. Nevertheless, there were no significant differences regards to adiponectin levels between experimental groups.

CONCLUSIONS: These findings suggest that increased level of adipokines may be used as risk factor for obesity development. Studies aimed at determining the role of adipokines in the setting of obesity are needed.

Obesity

Cod: 1242

EVALUATION OF CARDIOVASCULAR RISK BIOMARKERS IN THE TUNISIAN OBESE PATIENTS

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BACKGROUND: Obesity is considered to be as a chronic inflammatory state in which adipose tissue is a true endocrine organ secretes adipokines such as anti-inflammatory cytokines that are involved in the pathogenesis of vascular disease and could represent a link between obesity and atherosclerosis. Objective: Atherogenic risk assessment in an obese population of Tunisian origin

METHODS: This study includes 81 subjects subdivided into two groups (42 obese patients and 39 non obese controls). The relationship between obesity and atherogenic profile was assessed by measuring fasting inflammatory biomarkers (IL8, IL6, TNF alpha, RBP, orosomucoid, albumin, pre albumin, transferrin, hsCRP), and lipidic parameters (Lp(a), ApoA, ApoB, total cholesterol, triglycerides, and HDLcholesterol). LDL cholesterol and ApoB /ApoA ratio were calculated.

RESULTS: Statistic analysis revealed that IL8, TNF alpha were significantly elevated in obese patients than non obese controls (9,38 ± 4,9 pg/ml versus 6,73 ± 2,37 pg/ml ;p=0,013 and 6,99 ± 2,13 pg/ml versus 6,00 ±1,60 pg/ml; p=0,028 respectively). Lipid parameters measured, has revealed that the values of triglycerides were significantly higher in obese patients compared with control subjects (1.65 ± 0.72 mmol/l versus 1.42 ± 0.97 mmol/l; p = 0.004). Correlation of parameters in obese revealed significant positive correlation between IL8 and LDL cholesterol (p=0, 02, r=0, 38). ApoA correlated significantly with tansferrin (r= 0,617; p<10-3) and with albumin (r=0, 42; p= 0, 017). We note also a significant correlation between hsCRP and Lpa (r=0, 61; P<10-3). Negative correlation was found between serum haptoglobulin and HDLc (r=-0, 52; p=0,002), ApoB/ApoA ratio and transferrin (r=-0,37 p=0,0034).

CONCLUSIONS: Our study supports the hypothesis that increased inflammatory process might be associated with an atherosclerotic risk in the obese Tunisian population. The relationship between inflammation and dyslipidemia may partly explain the atherogenic role of inflammation.