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12th International Conferences on
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March 18-19, 2019 | Rome, Italy

Posters

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Childhood obesity and parental feeding practices in a Colombian vulnerable population

Edna Gamboa-Delgado and **Martha Lucía Caceres**
Universidad Industrial de Santander, Colombia

Statement of the Problem: Different parental feeding practices or not may favor healthy eating behaviors in children. Some of these practices could increase the risk of childhood obesity.

Objective: To evaluate the association between parental feeding practices and childhood obesity in less fortunate children.

Methodology: Analytical cross sectional in preschool children and their parents (n=384), beneficiaries of government programs of the Colombian Family Welfare Institute aimed at economically, socially and nutritionally vulnerable population. A 55-item Parental Feeding Practices Questionnaire, validated in Latino parents was used (response options ranged from never (=1) to always (=5)). The sample was chosen by simple random sample from the total number of Child Development Centers of Bucaramanga, Colombia. Models of binomial regression were used.

Findings: The average of parent's age was 33.47 years±10.96. The 52.59% of participants belonged to low socio economic status. The overweight or obesity prevalence was 4.83% (CI 95% 2.78; 7.73). The most common parental feeding practices were encourage/compliment healthy eating (median: 4.1) and ask child what he/she ate (Median: 4.0), both belonging to positive involvement in child eating dimension, followed by tell child to eat all food on plate (median: 3.57) of pressure to eat dimension. The children whose parents ask them what he/she ate, have less probability of present childhood obesity (RR: 0.68, CI 95%: 0.44; 0.96, p=0.043), while children whose parents use food as reward have almost two times more probability of develop childhood obesity (RR: 1.86, CI: 1.15; 3.01; p=0.011).

Conclusion & Significance: This study provides evidence that some parental feeding practices are associated with childhood obesity in Colombian vulnerable children. These findings are important for the design, implementation and evaluation of nutrition education programs focused on parents.

Recent publications:

1. Afonso L, Lopes C, Severo M, Santos S, Real H, Durão C, Moreira P and Oliveira A (2016) Bidirectional association between parental child-feeding practices and body mass index at 4 and 7 y of age. Am J Clin Nutr. 103: 3 861-867.

2. Blissett J and Bennett C (2013) Cultural differences in parental feeding practices and children's eating behaviours and their relationships with child BMI: a comparison of Black Afro-Caribbean, White British and White German samples. Eur J Clin Nutr. 67(2):180-4.

3. Tschann J M, Gregorich S E, Penilla C, Pasch L A, de Groat C L, Flores E, et al. (2013) Parental feeding practices in Mexican American families: initial test of an expanded measure. International Journal of Behavioral Nutrition and Physical Activity 10(6):1-11.

4. Tschann J M, Martínez S M, Gregorich S E, Penilla C, Pasch L A, de Groat C L, et al. (2015) Parental feeding practices and child weight status in Mexican American families: a longitudinal analysis. International Journal of Behavioral Nutrition and Physical Activity 12:66.

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5. Yee A, Lwin M and Ho S (2017) The influence of parental practices on child promotive and preventive food consumption behaviors: a systematic review and meta-analysis. International Journal of Behavioral Nutrition and Physical Activity 14:47

Biography

Edna Gamboa-Delgado has her expertise in Nutritional Epidemiology. She is a Nutritionist and Dietitian and has completed her Master in Epidemiology, PhD in Science in Population Nutrition. She is an Associate Researcher (Colombian´s research classification system- Colciencias). Her areas of interest lies in: research in childhood obesity, nutrition and public health, chronic diseases and diet, nutrition education interventions, nutritional epidemiology, design, implementation, monitoring and assessment of food and nutrition programs. In recent years she has been developing a research line on Childhood Obesity, its associated factors and interventions for its control. Currently she is working as an Associate Professor at Nutrition School of Universidad Industrial de Santander in Bucaramanga, Colombia.

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Effect of lactic acid bacteria intake on the health of dam and infant mice

Akie Sato, Shinobu Fujihara and **Noriko Komatsuzaki**
Seitoku University, Japan

We examined the effects of the ingestion during pregnancy and lactation of a high-fat diet, a low-calcium diet, and *Lactobacillus paracasei* NFRI 7415 (LAB) on the health of murine dams and infants. Two experiments were performed. In experiment 1, we divided 15 pregnant 9-wk-old mice into three equal groups receiving the control diet, a high-fat diet (HD), or an HD+LAB (HDL) diet during the pregnancy and lactation period. Within 24 hr of birth, the litters were culled to 10 pups each and nursed by their dams until weaning. After weaning, the liver T-cho concentration in the HDL group of pups was significantly lower than that of the HD group ($p<0.05$), suggesting that intake of *Lb. paracasei* has a positive effect on infant helth. In experiment 2, we divided 20 pregnant 9-wk-old mice into four equal groups receiving the control diet (C), a low-calcium diet (- Ca), a C+LAB (CL) diet, or a -Ca+LAB (-CaL) diet during the pregnancy and lactation period. Within 24 hr of birth, the litters were culled to 10 pups each and nursed by their dams until weaning. After weaning, the dams' body weights and the dietary intake in the C and the CL groups were significantly higher than those of the -Ca and -CaL groups ($p<0.05$). The bone mass of the CL group dams was increased compared to those in the other groups. We speculate that the absorption of calcium by *Lb. paracasei* NFRI 7415 may be enhanced by a sufficient intake of calcium during pregnancy and lactation.

Biography

Akie Sato has completed her PhD in Nutrition from Seitoku University. She currently works as a Teaching Assistant at the Department of Human Nutrition, Seitoku University.

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Biochemical and behavioral consequences of ethanol intake in a mouse model of metabolic syndrome

Pablo Balino
Jaume I University, Spain

Background: Alcohol abuse is common in people with sedentary lifestyles, unbalanced diets and metabolic syndrome (MS). Both, alcohol abuse and MS have negative effects on the CNS inducing cognitive impairment and impaired brain oxidative status. Considering that a few studies have focused on the combined effects of both conditions in the brain, the aim of this work is to elucidate the effects of alcohol intake in a mouse model of MS, at the behavioral and biochemical level.

Methodology: Control (B6.V-Lep ob/+ JRj) and MS (B6.V-Lep ob/obJRj) male mice aging 4 weeks were used in the study, divided in four groups: control (C), ethanol (E), obese (Ob), obese-ethanol (Ob-E). 10% ethanol consumption model was used for 6 weeks. Basal glycemia, insulinemia and a glucose overload test were evaluated at the end of the study. An object recognition test was used to assess short- and long-term memory. The antioxidant enzyme glutathione peroxidase (GPX) activity and the lipid peroxidation product, malondialdehyde (MDA) were analyzed in mice cortex samples.

Results: No significant differences were found among groups in long- and short-term memory. No significant differences between C and E group were found in the basal glycemia and the glucose overload test. However, the Ob group presented a significant increase in both parameters when compared to the C and E groups. These values were significantly decreased in the Ob-E group when compared to Ob group. Insulinemia was increase in both, Ob and Ob-E when compared to C and E groups. The activity of GPX was burst in the E, Ob and Ob-E groups when compared to C animals. No significant differences were observed in MDA concentration.

Conclusion: Four weeks of ethanol administration do not induce significant behavioral or biochemical brain impairments in Ob mice, although it was able to modulate glucose metabolism.

Biography

Pablo Balino received his Bachelor's degree in Biology from the University of Valencia, Master's in basic and applied Neurosciences by the University of Valencia, and PhD in Biology from Jaume I University. During the doctorate, his main line of research has focused on the study of the neuroenzymatic mechanisms of brain metabolism of ethanol, as well as its behavioral repercussion. During this period, and supported by a predoctoral fellowship from the Ministry of Science, Innovation and Technology. He completed a 1-year stay at the Center for Alcohol Studies (Rutgers University, New Jersey). After the doctorate, he is awarded with a postdoctoral fellowship belonging to the prestigious European Marie Curie program, becoming a research member of the NEUROACT consortium "A collaborative training program to develop multi-electrode array (MEA) platforms to understand synaptic function and treat diseases of the nervous system ". He is currently a research fellow in the group of neural systems within the area of physiology at the University Jaume I.

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The effectiveness of problem-solving training program on problem- solving ability and disease control for diabetics with Hypoglycemia

Fei-Ling Wu
Chang Gung Memorial Hospital, Taiwan

Objective: The aim of this study is to develop the problem-solving training program based on the theories of social problem solving and to evaluate the longitudinal effects on problem-solving orientation, problem-solving ability, emotional adaptation and glycated hemoglobin for diabetics with hypoglycemia.

Methods: This study employed a quasi-experimental study design. Sixty-two people with type 2 diabetes from the metabolic clinics of medical center and regional hospitals in northern Taiwan were convenience sampling divided into an experimental and control group of thirty and thirty-two participants, respectively. Both groups were assessed at four separate times periods, including the pre-test, post-test 1 (1rd month), post-test 2 (3th month) and post-test 3 (6th month). The experimental group received a 12-week problem-solving training program, which included: problem-solving brochure education, problem-solving skills guidance, teaching blood glucose self-monitoring and 6-12 phone call follow ups (of 10-20 minutes each). The control group received a self-regulation manual only. Hypoglycemia Problem Solving Scale, Disease-Associated Negative Mood Scale and HbA1c were used in this study to measure differences between pre- and posttest values. The statistical analysis included frequency, percentage, mean, one-way ANOVA, pair-t test and repeated-measures two-way ANOVA.

Results: The result showed that problem-solving ability; emotional adaptation and glycated hemoglobin scores were significantly improved by after the problem-solving training program group intervention. On the 3th month after intervention, we found a significant difference between the two groups in terms of problem-solving ability and HbA1c.

Conclusion: Applying problem-solving skills, patients take initiative to identify and seek possible strategies to solve their problems, alleviate diabetic issues and achieving self-management.

Biography

Fei Ling Wu has her expertise in evaluation and passion in improving the diabetic care. She constructed a hypoglycemia problem-solving scale based on the theory of social problem solving. At the same time, the concept of problem solving is also applied to topics related to diabetes care. In the future, she will also actively improve her effectiveness in helping people with diabetes manage their hypoglycemia-related problems.

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Validation of Diabetes Medication adherence scale in the Lebanese population

Mallah Z, Hammoud Y, Zein S, Rachidi S, Awada S, Ballout H and **Al-Hajje A**
Lebanese University, Lebanon

Introduction: Diabetes mellitus is a major global public health problem and lack of adherence to medication causes suboptimal glycemic control increasing complication rates, costs and mortality. The objective of this study was to validate the Diabetes Medication Adherence Scale (DMAS-7) developed to evaluate the adherence to oral anti-diabetics in Lebanon, determine its' concordance with another validated scales and to assess adherence rates and factors.

Methods: A descriptive cross-sectional study was conducted on a sample of Lebanese diabetic patients selected from private and hospital clinics located mainly in Beirut, Lebanon. Data was collected from adults aged above 18 years, diagnosed by type 2 diabetes and taking an oral anti- diabetic for at least 6 months using a questionnaire. The level of adherence was measured using the DMAS-7 and the Lebanese Medication Adherence Scale (LMAS-14). Bivariate and multivariate analyses were conducted, and the scale was validated in terms of reliability, predictive ability, and construct validity using SPSS version 19.

Results: Out of 300 eligible patients, the rate of adherence was only 33.7% using DMAS-7. This suboptimal adherence level was significantly associated to many factors including monthly medication cost, diet follow-up, HbA1c, postponing doctors' visits, feeling of treatment burden and inefficacy, number of medications per day, etc. Other measures of validity showed good reliability shown by Cronbach alpha= 0.627, good predictive value measured by the area under the ROC curve= 0.675 (p-value <0.001), good construct validity with LMAS-14 scale (Spearman's rho = 0.846; Cohen's kappa = 0.711). DMAS-7 and LMAS-14 were correlated (ICC average measure = 0.675; p-value <0.001) which shows a good concordance and increases the validity of the DMAS-7. Logistic regression revealed that having an optimal glycated hemoglobin Hb1Ac percentage (OR= 0.779; 95% CI= 0.671-0.903; p=0.001), performing regular physical activity (OR 2.328; 95% CI= 1.347- 4.02; p= 0.002) and following diet program (OR 3.294; 95% CI 1.483- 7.319; p= 0.003) significantly increased medication adherence. However, postponing doctors' visit (OR 0.453; 95% CI 0.209-0.985) was significantly associated with poor adherence. The DMAS score was found to be a significant predictor of HbA1c control (p-value< 0.05) where an increase of patients' adherence to his oral anti-diabetics calculated by DMAS results in a 2 fold higher probability that the HbA1c becomes controlled (OR= 2.006).

Conclusion: The DMAS-7 is a reliable and valid instrument for assessing adherence to medications that can be used in order to assess adherence and help achieve better glycemic outcomes..

Biography

Amal Al-Hajje has her expertise in research and teaching in Lebanese University since 2005. She has many publications after years of experience in clinical pharmacy and therapeutics, pharmaco-epidemiology, and hospital pharmacy. She is a member of the Pharmacy Lebanese Colloquium Comity since 2006 , a member of the Lebanese Order of Pharmacists since 1999, a member of the Clinical Pharmacy department team- Lebanese University since 2006, and a member of Clinical Research and Pharmaco-epidemiology team- Lebanese University – Faculty of pharmacy.

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Comparative lipid evaluation in patients with type 2 diabetes mellitus on continuous subcutaneous insulin infusion and multiple daily injections

Seidinova Aigerim
International Kazakh-Turkish University, Republic of Kazakhstan

Background: Type 2 diabetes accounts for 90% of all types of diabetes [1]. Diabetes mellitus is a chronic metabolic disease that often exacerbates lipid metabolism, affects weight. Several studies have been devoted to the study of body mass index (BMI) in people with diabetes on a continuous subcutaneous insulin infusion (CSII) [2, 3, 4]. Extremely little has been studied about the lipid changes in patients with diabetes on the CSII. Thus, people with type 2 diabetes need more detailed research on (CSII) [5].

The purpose: To study lipid parameters in patients with type 2 diabetes on a CSII and MDI.

Materials and methods: In this research work, lipid data (Cholesterol, Triglycerides, HDL, LDL) were compared in patients with type 2 diabetes who were on CSII (n = 105) and MDI (n = 105). All patients were divided into subgroups by age (45-50; 51-55; 56-65 years); on the duration of the disease (5-10 years; 11-15 years; 16 years and above) and on gender differences (men and women).

Results: Comparative analysis showed high statistical confidence between the average cholesterol levels of the studied groups at the level of $p \leq 0.001$. Similarly, it was with HDL, at the level of $p \leq 0.001$. When comparing only in women, LDL was found to be statistically significant ($p \leq 0.05$). Comparison of the average values of triglycerides by sex, age, duration of the disease was not found a significant statistical significance ($p > 0.05$).

Conclusion: The method of treatment of CSII influenced the level of lipids, in patients cholesterol was lower compared to the MDI. However, CSII did not affect triglycerides, only in female.

Key words: Diabetes mellitus, Cholesterol, CSII, MDI.

Biography

Aigerim Seidinova is a researcher and doctoral student (PhD). She is interested in the field of metabolism and diabetology, and also loves to use new modern innovative technologies in her research work. This research is a personal initiative of the author and started in 2017 in the city of Almaty, Kazakhstan. This time work is completed; various parameters of patients with type 2 diabetes mellitus on insulin pump therapy have been investigated.

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Glucagon-like peptide-1 promotes α to β cell Trans-differentiation in the absence of MafA

Chuan Zhang
Second Hospital of Jilin University, China

Statement of the Problem: Diabetes is a chronic disease caused by the relative or absolute lack of functional pancreatic β cells and is characterized by chronic hyperglycemia. Type 2 diabetes islets exhibit worse glucose-stimulated insulin secretion than normal islets and a decrease in MafA expression. Researchers have reported that GLP-1 plays important roles in the differentiation and regeneration of pancreatic β cells. However, this perspective that GLP-1 can play an important role in α cell trans-differentiation under the condition of MafA gene deletion and can produce new insulin-producing cells has not been previously studied. The purpose of this study is that glucagon-like peptide-1 promotes α to βtrans-differentiation in the absence of MafA.

Methodology & Theoretical Orientation: Male MafA-deficient mice were injected GLP-1 (50 μg/kg body weigh) daily for 4 weeks. Blood glucose level and body weight were measured, and the numbers of immunofluorescent islet α cells and β cells were analyzed by Immunohistochemical analysis. Real-time quantitative PCR was used to analysis the change in related transcription.

Findings: GLP-1-treated mice exhibit improved blood glucose levels without hypoglycemia. Mice injected with GLP-1 increase β cell regeneration by promoting α-β cell trans-differentiation. GLP-1-treated mice may induce the conversion of α cells into β cells by inducing PDX-1 production.

Conclusion & Significance: GLP-1 can reduce fasting blood glucose, decrease body weight, increase β cell regeneration by promoting α to β cell trans-differentiation. This research provides an new incisive point for the treatment of diabetes mellitus and provide the theoretical and experiment bases for treatment of diabetic β cell failure.

Biography

Chuan Zhang has her expertise in evaluation and passion in improving the diabetes and Obesity. She has been engaged in clinical and scientific research for more than 30 years, and she tries to combine the knowledge and technology she has learned in Japan with his clinical work. She has designed this experiment after years of experience in research, evaluation, teaching and administration both in hospital and education institutions. This research provides an new incisivus point for the treatment of diabetes mellitus and provide the theoretical and experiment bases for treatment of diabetic β cell failure.

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Dietary & Exercise Recommendations amongst Diabetic Patients

Amal El-Abbassy
Menoufia University Egypt

Background: A cornerstone of diabetes treatment is attention to lifestyle. Lifestyle modification, although different, is an equally integral part of diabetes management. Unhealthy lifestyles, such as lack of physical activity and excessive eating, initiate and propagate the majority of type 2 diabetes.

Aim: This study was to determine the role of dietary and exercise recommendations amongst type 2 diabetes mellitus patients.

Methods: Subjects: A purposive sample of all diabetic patients 30 years or older diagnosed with type 2 diabetes mellitus and on clinic care for two or more years who contact the Internal Medicine Clinic in Shebin El-kom Teaching Hospital were included in this study.

Instruments: It consisted of self -administered questionnaire: It included two constructed tools;

1. Questionnaire for socio demographic data including age, educational level, employment, and marital status, etc.

2. Lifestyle Questionnaire consisted of yes/no and multiple-choice questions related to perceptions related to lifestyle modification recommendations of diet & exercise, adherence/non- adherence to lifestyle modification recommendations, social and environmental variables as reasons for non- adhering to life style modification of diet & exercise.

Results: The study showed that the majority of the studied subjects reported that healthy dietary habits has a role in management of diabetes and perceived that healthy dietary habits helps to control blood sugar (94.0%, 92.7% respectively). Also, the highest percentage of the studied subjects reported that gentle aerobic exercise has a role in management of diabetes and perceived that exercise helps to control blood sugar (89.3%, 88.7% respectively).

Conclusion: Type 2 diabetes patients are not adherent to diet and exercise recommendations and no particular single reason could be attributed to poor adherence to either diet or exercise recommendations, rather a combination of many factors.

Recommendations: Health care providers should play a role in increasing patients awareness of the non- adherence factors of lifestyle modification.

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The Effect of Nutrition Therapy on Progress of Adult Women with Type II Diabetes

Magda M. Mohsen
Menoufia University, Egypt

Background: Diabetes Mellitus (DM) has emerged as an epidemic problem in Egypt. Diabetes is a chronic illness that requires a holistic approach in terms of care to prevent both acute and long-term complications. Nutrition therapy for diabetics can be divided into (1) dietary interventions and (2) physical activity. Lifestyle and dietary modifications form the cornerstone of therapy in type II diabetic patients (insulin resistance). Lifestyle modification interventions are a top priority for prevention and control many of chronic diseases.

The purpose: The current study was to examine the effect of Nutrition therapy intervention on reducing some of modifiable risk factors among adult diabetic women. Methods: A quasi experimental design was used to test research hypothesis. A convenience Sample of 104 adult women who diagnosed as type II diabetes was selected. Setting: this study was conducted in the out-patient clinic of Teaching Hospital, at Shebin El-Kom City, Egypt. Tools for data collection: A) Interviewing questionnaire, B) Medication Adherence Rating Scale (MARS), C) 24 hours dietary recall, D) Exercise questionnaire and E) Bio physiological Measurements.

Results: There was statistical significant improvement in medication adherences post intervention compared to pre intervention. Also, there was statistical significant decrease in calories intake post intervention than before intervention. The implementation of Nutrition therapy and lifestyle modification interventions is more effective in redacting random blood sugar in post than pre intervention (227.8 ± 128.9 to 157.5 ± 37.9 respectively). Conclusions: Nutrition therapy intervention can favorably decrease some of modifiable risk factors among adult diabetic women.

Recommendation: Encourage nurses to provide health education about Nutrition therapy and lifestyle modification intervention to enhance patient care, and adoption of healthy behavior.

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Underestimation of weight status in children and adolescent aged 0-19 years old: A systematic review and meta analysis

Abrar Alshahrani
University of Nottingham, UK

Introduction: It is widely recognised that obesity in childhood is a worldwide public health issue. For any intervention, the first step is to identify overweight status which problematizes the child's current weight to legitimises action. This involves all those in the therapeutic triad: children themselves, parents and healthcare professionals. In policy and health promotion, it is generally accepted that a significant barrier to intervention is that parents (caregivers) of children with obesity underestimate their child's weight status Furthermore, research has shown that healthcare professionals may be also be underestimating. The aim of this study is to systematically identify and critically evaluate relevant research to investigate the prevalence of, and factors associated with, underestimation of children's weight status.

Methods: Abstracts published between 2000 to 2017 were included, and where identified using the following search engines: CINAHL, EMBASE, PUBMED, and Psych-Info. References of relevant articles were hand-searched for additional studies and the "Related Articles" and "Cited by" functions in search databases were also used. Both qualitative and quantitative research that assessed caregivers, children and healthcare professional's perceptions of children's weight using Likert scale questions, classification into weight categories, pictorial methods, or reporting of height and weight, and were then compared with documented standards for defining overweight for example (IOTF, CDC) based on anthropometric measurements were included. Publication language had no bearing on the nature of the included studies, nor did the publication location. In the meta-analysis, pooled effect sizes were calculated using random-effects model.

Results: A total of 87 articles were included. In the quantitative studies, the random effect sizes revealed that 55% (95% confidence interval 49%–61%) of (caregivers) and children underestimated their degree of overweight. HCPs shared this misperception (but limited studies prevented meta-analysis). Furthermore, underestimation was positively associated with a number of factors such as: child's age, gender (male), current BMI and parental weight status, education and ethnicity. In the qualitative studies, parents commonly describe their children in terms other than obese such as "big boned," "thick, "and "solid", and demonstrated a strong desire to avoid labelling their child with medical terminology.

Conclusion: This review clearly demonstrates that underestimation of child weight status is endemic. Furthermore, underestimation was positively associated with a number of factors such as: child's age, gender (male), current BMI and parental weight status, education and ethnicity.

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The level of physical activity, sedentary time and obesity in children and adolescents: What is the evidence in this game?

Arli Ramos de Oliveira
State University of Londrina, Brazil

The purpose of this study was to discuss the relationship between physical activity, sedentary time and obesity in children and adolescents. The presentation intends to bring about the different factors that can affect children and adolescents´ health. The influence of physical activity, the level of physical activity, the screen time, and the objectively measure instruments to assess physical activity. Hence, to present some studies developed in Brazil by different graduate programs and researchers related to the state of art of these variables. For such it becomes relevant to point out the need for more longitudinal studies and ecological validity evidence. The childhood and adolescent period of development might be affected for this intriguing and multifactorial relationship between physical activity, sedentary time and obesity, increasing the probability to be committed by non-transmissible chronic diseases later in life such as Diabetes Type II, hypertension, cardiovascular diseases and some types of cancer. Social and cultural factors also seem to develop a key role to promote and develop favorable perceptions about physical activity in this period of development which seems through an active lifestyle to increase the chance to adherence that can affect health across life span.

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To promote development of lean and healthy bodies, we should focus on vigorous exercise rather than restriction of dietary energy intake

Bernard (Bob) Gutin
Columbia University, USA

The dominant metabolic theory of obesity is that it develops from excessive energy intake. However, preventive interventions based on this theory have often been ineffective in growing youths. This presentation will offer a developmental theory, which is based on recent epidemiologic research and a new line of research dealing with differentiation of immature stem cells into mature tissues. This theory posits that the mechanical stimulation provided by vigorous physical activity (PA) causes immature stem cells to differentiate into lean tissue cells rather than into fat cells. Consistent with this theory is recent research showing that interventions that involve adequate doses of vigorous PA, along with appropriate diet composition, are especially effective in promoting development of lean body mass and reducing visceral adipose tissue in youths.

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Creating intensive outpatient (IOP/PHP) programming for binge eating disorder for adolescents: Improving obesity and eating disorder resources in the adolescent population

Christy McElroy[1, 2]
[1]Linden Oaks Behavioral Health, Naperville, USA
[2]Center for Personal Growth, Carol Stream, USA

Since the additon of binge eating disorder (BED) to the DSM-V, more awareness and education has been brought to the topic of obesity, food addictions and healthy lifestyle. Although, BED is a relatively new diagnosis, research indicates that the prevalence of this type of eating disorder is 2 ½ times higher than anorexia and bulima combined. Within the last few years, we have been taking positive steps to provide more access to treatment. Although, trying to find access to care for the child and adolescent population has been farily limited and almost non-existent at highler levels of care for the treatment of binge eating disorder. The creation of a PHP/IOP adolescent program needs to incorporate the most effective and evidenced based treatment modalities for binge eating disorder, as well as family based interventions that include education and modelling. Topics included in the creation of an adoloscent binge eating disorder PHP/IOP include determination and assessement for level of care, provider training to reduce stigmatization, education on current terminolgy, and adaptatation of common eating disorder interventions. Differences in adult and adolescent treatment should be distinguished as well as the recovery outcomes that should be expected with treatment.

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Investigating the role of high pro-inflammatory diets (high fat diets) and childhood obesity in adult cancer risk

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Childhood obesity has been a growing epidemic in the United States with about one in three of children considered overweight or obese. The increased number of overweight and obese children can be linked to several factors including nutrition and social economic status. Obesity in children can lead to numerous health complications including chronic inflammation and carcinogenesis. African American minorities are more likely to be diagnosed and die from cancer than any other race. Therefore, this study aims to eliminate or reduce preventable risk factors such as unhealthy nutrition and childhood obesity, which may reduce clinical manifestations of adult cancer outcomes. Areas of South Carolina have a long history of being under-developed which contribute to numerous problems such as obesity, poverty and sub-par health care. We have enrolled SC children from varying degrees of rurality to determine if obesity and/or high-fat pro-inflammatory diets contribute to increased levels of pro-inflammatory markers and obesity related genes to include: adiponectin, leptin, SAA1/2, Interleukin 1 and 6. Subjects were randomized into obese and non-obese groups based on BMI guidelines and given a nutritional survey to assess nutritional habits, exercise habits and body perceptions. The transcriptional levels of pro-inflammatory genes were measured by quantitative Real-time polymerase chain reaction. The results suggest increased expression of these pro-inflammatory markers is directly correlated to diet irrespective of weight class (normal, overweight, obese). Reducing childhood obesity and pro-inflammatory diets are beneficial in the reduction of cancer risk and will serve as preventive measures for early-stage onset of adult cancers.

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Quality improvement project: Together against childhood obesity

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Background: The prevalence of obesity in children with autism is almost as high as general population. Obesity and its complications poses significant threats to independent living, self-care, quality of life, and long-term health outcomes for children with autism. Whilst appreciating the multifactorial nature of childhood obesity, we reviewed the rate of obesity in children with autism and their management planning in the community paediatric departmet in a district general hospital in Wales and disegined a quailty improvement project to improve the service.

Aim: Improve the understanding among medical professionals in early detection and efficient intervention to prevent obesity in children with autism.

Methods: Baseline data collection revealed that amongst local children with autism, the rate of obesity/overweight was 20.5%. Focussed history taking including documentation of BMI, co-morbidities and management planning were identified as areas of improvement. And also there were limited understanding about the available local resources and the referral pathway for high risk cases. The quality Improvement project was implemented over a period of six months. A multifaceted approach to improvement was carried out. This included the designing of a history taking proforma, display of posters highlighting local resources and teaching for all clinical staff.

Outcome: The outcome was measured by a repeat retrospective notes review. There was significant improvement in recording of BMI in children with autism, identification of high risk cases and co morbidities. There was also marked improvement in focused history taking and management planning for children with obesity. The outcome will be measured in regular interval to ensure sustainibility.

Conclusion: Obesity in children with autism is multifactorial and require unique approach. Our quality improvement project has enabled medical staff to have a clear understanding of the prevalence of obesity amongst local children with autism and also made them aware of the available local resources which is evidenced by the improvement in focused history taking and management planning. Our next step would be multidisciplinary working and innovative approaches to involve patient and family members. We have researched how we can all work together to reduce obesity in children with autism and would like to share our model of change.

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Prevalence of childhood overweight and obesity and its affecting factors among mid-preparatory school children's in Al-Dawadmi City, Saudi Arabia: A school-based childhood obesity education and intervention

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Childhood overweight and obesity is one of the most serious public health challenges of the 21st century. The prevalence has increased at an alarming rate. The current research is aimed at to determine the prevalence of childhood overweight and obesity and its determinant factors among Saudi children. A cross-sectional survey was conducted among 465 mid preparatory school children in Dawadmi city from March to April, 2018. Overweight and obesity was determined by using BMI percentile chart, CDC 2000, Socio Demographic, WHO child growth standards, Global School based student health survey (GSHS) which uses a self-administered KAP questionnaire and data were collected using combination of interview of children. Data were processed and analyzed. A total 465 children participated in the study. The overall prevalence of underweight, normal, overweight and obesity is 45(9.67%), 349(75.05%), 46(9.89%) and 25(5.37%) respectively. Significant association (P 0.001) between overweight, obesity, illiterate economic stage of the father, the presence of obesity among in the family, child' attitude regarding eating habits, regular physical activity includes play, games, sports, recreation, walking or riding bicycle and sedentary life style like spent their free time watching TV, play computer game and mobile phones. There was a severe effect of overweight and obesity children on their psychological consequence are at 33.3%. Early education, interventions and evaluations conducting in primary and secondary schools and community based on modifiable risk factors. Promoting active lifestyles (Physical activity) and Diet (Healthy eating habits) are more effectively to prevent the rate of childhood overweight and obesity.

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Handgrip strength identifies type 2 diabetes mellitus patients with higher fracture risk

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Patients suffering from type 2 diabetes mellitus (T2DM) show increased fracture risk in comparison with healthy subjects. Bone mineral density (BMD), as measured by DXA, may be not enough to discriminate T2DM patients with higher fracture risk. Our aim was to investigate whether handgrip strength may be associated with bone health in T2DM patients. Anthropometric data and information about metabolic control and diabetic complications were recorded. Handgrip strength by dynamometer, FRAX derived 10-years probability of major osteoporotic fractures and hip fractures were also assessed. Bone evaluation was performed by a dual-energy X-ray absorptiometry (DXA) densitometer at the lumbar spine (L1-L4) and at the femoral neck; based on specific software, the trabecular bone score (TBS) was calculated. Lateral scan of thoracic and lumbar spine was assessed to investigate morphometric vertebral fractures (Vfx). 29 patients (female 65%) [median age 67 (60 to 70)] with T2DM were considered. Morphometric vertebral fractures were detected by DXA in 17% of patients without gender differences. The median ten years probabilities of fractures were 8.1% and 2.3% as for major osteoporotic or hip fracture respectively. Median femoral neck T-score value [-1.1 SD (-1.8 to -0.5)] was indicative of osteopenia, while lumbar spine T-score was observed even in the normal range [-0.8 SD (-1.5 to -0.1)]. TBS was positively associated with BMD at lumbar spine and femoral neck. Median handgrip strength value was 22.3 kg (18.9 to 31.3). At multiple regression analysis, handgrip strength predicted both lumbar (β=0.009, SE 0.0034, p=0.01) and femoral neck BMD values (β=0.006, SE 0.002, p=0.01). Age (β=-0.008, SE 0.002, p=0.007) and handgrip strength (β=0.01, SE 0.002, p=0.0001) were also independently associated with TBS score, after correcting for mean HbA1c values and time since T2DM diagnosis. These findings suggest that handgrip strength may be a reliable tool to investigate bone fragility in T2DM.

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Prevalence of Diabetic Nephropathy and associated Risk Factors among Type 2 Diabetes Mellitus Patients in Ramallah, Palestine

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Aim: Albuminuria is an established marker for endothelial dysfunction and cardiovascular risk in diabetes and pre-diabetes. So we aimed to explore the prevalence of albuminuria (micro-albuminuria and macro-albuminuria) in patients with type2 diabetes mellitus (DM) in the Palestinian community and to determine the association between albuminuria and other health care and biochemical indicators.

Methods: A cross-sectional study was carried out at private health care center. A total of 550 diabetic patients aged 35 years and above with type 2 diabetes mellitus who attended the clinic from May 2017 through February 2018 were included. Socio-demographic, clinical, and laboratory data were obtained from the medical records of patients. Statistical analysis was carried out using the Statistical Package for the Social Sciences (SPSS, version 23).

Results: Out of the 550 patients recruited, the mean age and duration of diabetes were 57.8 years and 9.5 years, respectively. Approximately 62% were being managed by oral hypoglycemic agents alone, 4.3% by insulin alone, 31.7% were on a combination of oral hypoglycemic agents and insulin and slightly less than 2% were on dietary measures alone. The mean value for HbA1c was 7.71%. The overall prevalence of albuminuria among participants was found to be 34.6%; micro-albuminuria (29.3%) and macro-albuminuria (5.3%).

Conclusions: Albuminuria is highly prevalent among Palestinian population with type 2 diabetes. This calls for early and universal screening of urinary albumin. There is also an urgent need for measures that target tight glycemic and optimal blood pressure control and the use of renin-angiotensin system blockade.

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Bile Acid metabolism is altered in those with Insulin Resistance after Gestational Diabetes Mellitus

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Background: Bile acids (BAs) are known mediators of glucose metabolism that are altered in type 2 diabetes mellitus (T2DM) and gestational diabetes mellitus (GDM). We hypothesised that post-prandial BA fractions are changed in women with Insulin resistance (IR) after recovery from GDM using homeostatic model assessment (HOMA-IR).

Methods: 45 women median age 44(31-47) with previous GDM, including 20 with HOMA-IR >2.8 and 25 age-matched controls with HOMA-IR $\leq$ 2.8 were studied. After an overnight fast, all underwent an oral glucose tolerance test. Blood samples were collected at baseline and every 30min for 120min and analysed for glucose on automated platform and for total BAs, their conjugates and fractions using liquid-chromatography tandem mass-spectrometry. Baseline samples were analysed for insulin on automated platform. Delta (Δ) change (difference between baseline and maximal post-prandial response) were calculated. Data is presented as median (IQR).

Results: Fasting primary and unconjugated BAs were higher in women with HOMA-IR >2.8 vs. those with HOMA-IR $\leq$ 2.8 [0.24 (0.16-0.33) vs 0.06(0.04-0.22) μmol/L and 0.91(0.56-1.84) μmol/L vs. 0.69(0.32-0.89) μmol/L respectively. Δ taurine-conjugated BAs was higher in women with HOMA-IR $\leq$ 2.8 than those with HOMA-IR>2.8 [0.33(0.20-0.54) vs 0.23(0.13-0.34) μmol/L]. Fasting glucose and non-12α-hydroxylated BAs were negatively correlated in women with HOMA-IR >2.8 (all $p<0.05$).

Conclusions: Following GDM, individuals with HOMA-IR >2.8 have altered conjugated and non-12α-hydroxylated fractions of BAs. It remains to be elucidated if the altered BA metabolism is a contributing factor to the pathogenesis or a consequence of GDM.

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Dynamics of the quality of life indicators in patients with the metabolically healthy obesity after weight loss

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Background and Aims: Obesity is associated with high cardio metabolic risk and decreased quality of life (QoL). The quality of life in metabolically healthy obesity (MHO) is studied insufficiently. Our goal was to analyze indicators of QoL in patients with metabolically healthy obesity initially and in 6 months after weight loss by ≥5%.

Materials and methods: The study included 44 females with MHO (according to the IDF criteria of the metabolic syndrome, 2005: obese patients with no more than one additional cardio metabolic risk factor) and 33 females with metabolically unhealthy obesity (MUHO) aged 19 - 59 years. To assess the QoL, the questionnaire SF-36 (Medical Outcomes Study - Short Form 36) was used.

Results: Initially, QoL indicators in the MHO group did not have statistically significant differences from those in the MUHO group. Those patients in MHO group who reduced body weight for 6 months by 5% or more, increased the following indicators of quality of life: physical functioning by 7,5%, role physical by 11,6%, vitality - by 12,8%, social functioning - by 11,2%, role emotional by 11,9%, mental health by 8,8% ($p < 0,05$). In the MUHO group, the parameters of role physical (by 24,6%), role emotional (by 39,5%), mental health (by 9,2%) were statistically significantly increased ($p < 0,05$) on the background of clinically significant weight loss (≥5%).

Conclusions: The more favorable metabolic status of patients in the MHO group does not affect the quality of life indicators. The decrease in body weight by 5% or more in both patients with MHO and in patients with MUHO is accompanied by an increase in QoL. It predetermines the need to reduce body weight, regardless of the phenotype of obesity.

Key words: metabolically healthy obesity, metabolically unhealthy obesity, quality of life, SF-36 questionnaire.

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The biological effects of vitamin D with calcium on oxidative stress in diabetes

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Statement of the Problem: Diabetes mellitus is a major health issue in many countries around the world. In diabetes mellitus, uncontrolled hyperglycemia has been reported to induce oxidative stress and stimulates free radical formation, which may lead to many health complications. Vitamin D, however acts as a non-enzymatic antioxidant to protect cells against oxidative stress and cellular damage. The purpose of this study is to investigate the antioxidative effect of vitamin D plus calcium in streptozotocin (STZ)-induced diabetic rats.

Methodology: Rats were divided into four groups. First group (n=10) served as control and received a normal diet and water. Second group (n=6) served as a diabetic control (untreated). Third group (n=10) including diabetic rats orally received vitamin D (2000 IU/day) with calcium (500 mg/kg/day). Fourth group (n=9) including diabetic rats was treated with insulin. Blood glucose was measured weekly during this study. Activities of superoxide dismutase (SOD), glutathione peroxidase (GPO) and catalase were measured in the liver tissues. The level of malonaldehyde (MDA) was measured in the plasma.

Findings: The blood glucose levels were significantly lower in STZ-induced diabetic rats treated with vitamin D plus calcium than in untreated diabetic rats. Diabetic rats showed a significant decrease in the activities of SOD, GPO and catalase compared to normal rats. Oral administration of vitamin D with calcium to diabetic rats caused a significant increase in the activities of SOD, GPO and catalase compared with the untreated group. Furthermore, the plasma level of MDA was significantly elevated in diabetic rats compared to normal rats. Diabetic rats treated with vitamin D and calcium had a significantly reduced level of MDA, suggesting that vitamin D with calcium played a vital role in the protection of tissues from damage by free radicals.

Conclusion: Pathogenesis complication of diabetes mellitus that resulted from oxidative stress could be prevent or limited by oral supplementation of vitamin D combined with calcium.

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Adipose tissue-resident macrophages (M2-like) regulates proliferation of white and beige progenitors

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Previous reports suggested that adipose tissue macrophages are involved in maintaining insulin sensitivity in adipocytes along with improvement in metabolic genes. Nonetheless, it is largely unknown how depletion of M2-like macrophages regulates insulin sensitivity and adipocyte progenitor (AP) proliferation. To understand the role of M2-like macrophages in white adipose tissue (WAT), we generated CD206DTR mice based on transgenic expression of diphtheria toxin receptor under the control of the CD206(+) promoter to specifically deplete CD206 M2-like macrophages. Partial depletion of CD206 M2-like macrophages resulted in the generation of smaller adipocytes, upregulated expression of metabolically favorable genes and enhanced insulin sensitivity in both chow and high-fat diet-fed CD206-reduced mice. In vivo and in vitro studies revealed that Tgf 1, abundantly expressed in CD206 M2-like macrophages, regulate AP differentiation and proliferation. Flow cytometry analysis revealed that the number of APs was increased and cyclin gene expression levels in the AP fraction were up-regulated. To validate this hypothesis, we generated genetically engineered mice in which CD206 specific Tgfβ1 was knocked out after tamoxifen treatment. Increased number of APs and smaller adipocytes were observed in the CD206 specific Tgfβ1 knockout mice, suggesting that CD206 cell-specific deletion of Tgfβ1 resulted in the enhanced proliferation of AP. Previous studies had shown that type 2 cytokines and M2 macrophages induce cold-induced browning in inguinal WAT (ingWAT) by producing catecholamines. Exactly how the conditional and partial depletion of CD206 M2-like macrophages regulates the cold-induced browning of ingWAT, however, remains unknown. We also examined the role of CD206 M2-like macrophages in the cold-induced browning of WAT and found that partial depletion of CD206 M2-like macrophages caused an increase in the number of beige progenitors and also enhanced their proliferation in ingWAT in response to cold. Thus, we concluded that CD206 M2-like macrophages inhibit the proliferation of white and beige progenitors.

Keywords: Adipocyte progenitors, adipose tissue macrophages, beige adipocyte, insulin sensitivity.

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Genotoxic Susceptibility among the People of different Prakriti groups having Type 2 Diabetes Mellitus

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Statement of Problem: The increasing occurrence of multi-organ affecting type 2 diabetes mellitus now becomes a serious threat to public health. Ayurveda classifies human population as combination of three Doshas- Vata, Pitta, and Kapha according to their basic constitution known as "Prakriti". The Tridhoshas work in harmony to maintain good health in an individual. Any alteration of an individual's homeostatic state of Dosha's can lead to various diseases. Elevation of the doshas beyond an individual's threshold causes specific doshic disorder. The study has been designed to investigate the clinical, anthropological and induced-genotoxic variation among the Prakriti groups having type 2 diabetes mellitus.

Methodology & Theoretical orientation: This study was conducted with total sixty participants (age 30-70 years), ten in each Prakriti groups having type-2 diabetes mellitus with control. The selection was conducted as per the standard Prakriti assessment chart. The differences in biochemical parameters, DNA content and damage, apoptosis, ROS generation, interaction of DNA with heavy metals were observed. GraphPad Prism 8 was used to analyze the data; $p < 0.01$ was considered statistically significant.

Findings: Biochemical analysis suggested that people of Kapha is most susceptible to the renal and hepatic disorders. Whereas, significant decrease in DNA content ($p < 0.05$), higher percentage of DNA damages were observed in Vata Prakriti ($p < 0.01$) people having diabetes. The total cell damage and yield of ROS was also significantly higher in Vata Prakriti ($p < 0.0001$) in comparison to other. The Vata and Kapha Prakriti were more prone to lead (II) and Vata and Pitta Prakriti were genetically more susceptible to arsenic metals.

Conclusions & Significance: The results indicate that people of Vata Prakriti are the most genetically susceptible group in comparison to others. These could help in creating personalized treatment of diabetes among individual Prakriti. A worldwide assessment is needed for better applicability.

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Management of induced diabetic complications by Gymnadenia orchidis root Salep and pumpkin seed synergistically

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Statement of problem: Insulin deficiency or its inactiveness both causes diabetes mellitus which is the most prevalent metabolic disorder of human population. Synthetic drugs and insulin therapy against diabetes possess numerous drawbacks. Diabetic people are advised to choose low-glycemic food and herbal products to control diabetes. This study evaluated the synergistic supplementary effects of Gymnadenia orchidis Lindl root Salep and pumpkin seed powder on Streptozotocin induced type-2 diabetic mice.

Methodology & Theoretical orientation: Animals were divided into 6 groups of which 2 groups were taken as Normal and Food Control and rest 4 groups were made diabetic by Streptozotocin. One diabetic group was kept as control, and the other three groups supplemented with effective dose (200 mg/kg of body weight) of root Salep, pumpkin seed powder (5%) mixed food and both Salep and pumpkin seed food respectively. Changes in various biochemical parameters, DNA content and damage, liver, kidney and pancreas structures were noted after 21 days treatment. Data were analyzed by ANOVA for statistical significance.

Findings: The diabetic mice presented significant increase in glucose, HbA1c, liver, kidney and lipid parameters compared to the control group ($p<0.001$), which was confirmed by considerable damage of liver, kidney and pancreatic tissues in histological examination. Antioxidant enzymes levels also decreased in diabetic mice ($p<0.001$). Diabetic mice administered with root Salep and supplemented with pumpkin seed restored the biochemical alterations, antioxidant enzymes levels ($p<0.001$) and histological features especially of pancreas. Induction of diabetes caused considerable reduction in DNA content and severe DNA damage which was more effectively repaired by administration of root Salep and pumpkin seed. Terpenoids of root Salep and antioxidants of pumpkin seed may play the active role against diabetes.

Conclusion & Significance: The root Salep and pumpkin seed synergistically prevent diabetic complications and could be the better management for type-2 diabetes.

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The exon 8 deletion polymorphism of the UCP2 gene is associated with severe obesity in a Saudi Arabian case-control study

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Obesity is a major health concern in Saudi Arabia. The Uncoupling protein 2 (UCP2) seems to play a major role in regulation of human metabolism, therefore genetic polymorphisms in the UCP2 gene might contribute to obesity in part of the world. The main objective of the current study was to establish whether 45-bp insertion (I)/ deletion (D) polymorphisms in Uncoupling protein 2 (UCP2) are associated with moderate and/or severe obesity in a Saudi Arabian population. The aim of this study is to test the association between the UCP2 45-bp insertion/deletion polymorphism and moderate or severe obesity in Saudi Arabian population. 151 male and female Saudi Arabian volunteers from eastern province were participated in this study. They were divided as; non-obese, moderately and severely obese. Genomic DNA was extracted from all subjects and subjected to UCP2 gene insertion/deletion polymorphism genotyping using a standard PCR procedure. The overall frequency of the UCP2 45-bp insertion/ deletion genotypes was 58.3 %, 36.4 % and 5.3 % for the D/D, I/D and I/I genotypes respectively. The D/D genotype was highly prevalent in the severely obese group (82.9 %) compared to non-obese (46.2 %) or moderately obese (53.3 %). In a dominant model, logistic regression analysis showed no significant association between the insertion allele and moderate obesity (OR = 0.75, 95% CI: 0.35 - 1.59, P = 0.585), however, a strong inverse association was found with severe obesity (OR= 0.18, 95% CI: 0.07 - 0.44, P = 0.0004). The study presented the frequency of the UCP2 45-bp ins/del polymorphism in Saudis from eastern region. We also reported a strong association between the del/del genotype and severe obesity in our population.

Keywords— Uncoupling protein 2, UCP2 insertion/deletion polymorphism, Obesity.

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