

P13-017-24 Identification of Modifiable Risk Factors and a HOMA-IR Cut-Off Point to Measure Cardiometabolic Risk in Peruvian Adolescents

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Objectives: Identify a cut-off point to detect insulin resistance (IR) using the HOMA-IR and identify its risk factors in Peruvian adolescents.

Methods: This is a secondary analysis of a longitudinal study of 329 Peruvian adolescents follow up from infancy (6 to 11 months of age) to 14 years of age. Infants were part of a trial to evaluate the efficacy of complementary feeding with bovine milk fat globule membranes (bMFGM). ROC curve analysis was used to identify the specific cut-off point to classify IR using the sensitivity and specificity values in comparison with the MS (metabolic syndrome). Multiple logistic regression analysis including diet, physical activity and body composition from adolescence, excess weight during infancy, family history of non-chronic disease (FHNC) and participation in infant trial with bMFGM was included to identify risk factors associated with IR.

Results: Mean HOMA-IR was 3.3 (95% CI 3.1; 3.5) with no differences by sex. Prevalence of obesity and overweight in the adolescents was 14.6% (95% CI 11.3; 18.5%) and 27.5% (95% CI 23.2; 32.3%), respectively. Prevalence of MS according to the IDF criteria was 7.8% (95% CI 5.5; 11.0). We identified 3.9 for HOMA-IR as the cut-off point with high sensitivity (72.4%) and specificity (75.4%) for predicting MS. IR was present in 28.6% (95% CI 24.2;33.4%); 84% had at least one cardiometabolic risk factor and low high-density lipoprotein and abdominal obesity were the most prevalent (62 and 35%, respectively). Adolescents with higher fat mass index (OR 16.03, 95% CI 6.79 to 37.86), and those physically inactive (OR 2.08 95% CI 1.06 to 4.07) were more likely to have IR. No association was found with diet, excess weight at infancy, FHCD and whether received the (bMFGM) at infancy.

Conclusions: A cut-offs point of 3.9 for HOMA-IR allows to identify adolescents with high metabolic risk early in life. Strategies to promote lower FMI and improve the physical activity levels could reduce the risk of IR in adolescents. This strategies could be implemented in Food environments that have been recognize as potential spaces for this.

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P13-018-24 Identification of Fecal Biomarkers of High-Fat Diet in Peri-And Postmenopausal Women: A Cross-Sectional Study

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Objectives: This study performed untargeted metabolomics on stool samples of peri-and postmenopausal women to identify fecal biomarkers related to the high fat diet (HFD).

Methods: This cross-sectional study analyzed baseline data from a clinical trial on blackcurrant supplementation for bone health in 27 peri- and early postmenopausal women aged 45-60. Fecal metabolites were measured by liquid chromatography-mass spectrometry (LC-MS/MS). Principal Component Analysis (PCA), Partial Least Squares-Discriminant Analysis (PLS-DA) and Orthogonal Projections to Latent Structures Discriminant Analysis (OPLS-DA) were performed with MetaboAnalyst (version 6) to find group separation. The cross-validation of PLS-DA model was conducted using the 10-fold cross validation method. The study utilized Variable Importance in Projection (VIP) scores to identify key metabolites contributing to group discrimination.

Results: 1769 features were significantly different between fecal samples from low/medium and high fat diet groups ($P < 0.05$). Principal component 1 (PC1) showed 11.5 % of the variance and component 2 (PC2) demonstrated 8.5% of the variance, and PLS-DA and OPLS-DA improved the separation of groups. The validation of the PLS-DA model showed R2 of 0.99 and Q2 of 0.58 after using a maximum of 5 components. 100 top metabolites were selected based on VIP scores, and of these 10 were assigned annotated compounds and suspects. Suspects originate from unannotated spectra that are linked to an annotated spectrum in a molecular network. These metabolites were related to poly unsaturated fatty acid (PUFA), trans fatty acid, monoterpene alcohol, sesquiterpene lactone, sesquiterpenoids, and benzodioxoles families. The VIP score for the 10 metabolites were between 2.69 and 3.45.

Conclusions: Our study identified some fecal biomarkers that reflect adherence to HFD in peri- and early postmenopausal women. To be utilized as an objective tool for predicting HFD, these findings need further validation in large-scale observational and experimental studies.

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P13-019-24 Spatial Analysis of Overweight and Obesity Prevalence and Convenience Stores Density in 400 and 800 m Radii

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Objectives: An ecological study was conducted among children aged 6–12 years from schools in the metropolitan area

of Monterrey, Mexico, with a focus on the prevalence of overweight and obesity (OW + Ob). Objective: To detect possible associations between schools OW+Ob and the proximity and density of convenience stores in Monterrey from 2015-2018 period.

Methods: Nutritional status data reported in the National Registry of Weight and Height (RNPT) were analyzed, and convenience store data were extracted from INEGI's National Directory of Economic Units (DNUE). A suburb-level polygon layer that included the Socioeconomic Index (SEI) was also incorporated. Quintiles were generated to assess the prevalence of OW + Ob, and influence zones with radii of 400 m and 800 m were delineated around each school. Analyses were conducted using QGIS 3.282 and the SPSS 25 software.

Results: The average distance to the nearest store decreases as the prevalence of OW + Ob increases. Specifically, schools with a higher prevalence on average had convenience stores closer than those with a lower prevalence. For the 800m radius the schools from the lower quintile (Q1) of OW + Ob showed an average of about four convenience stores, and we found a rising trend up to Q5 schools that averaged seven stores in proximity. Between 2015 and 2018, an increase in the number and density of stores was observed in all schools, regardless of the level of prevalence.

Conclusions: OW + Ob is a complex phenomenon that cannot be reduced to a few factors. This study aims to address the key question of whether the stores themselves are the driving force behind the development of OW + Ob or whether the mere presence of stores in certain locations is a reflection of the inherent economic characteristics of regions within the metropolitan area.

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P13-020-24 Assessment of Acute Sarcopenia With Muscle Ultrasound in Hospitalized Older Patients: A Prospective Pilot Study

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Objectives: Sarcopenia is a well-known concept in geriatric medicine defined as the progressive degeneration of muscle mass and strength, as well as decreased physical activities in older adults. Acute sarcopenia, secondary to an acute stressful event (e.g., increased length of hospital stay), might not always recover entirely and may lead to or hasten the development of chronic sarcopenia. The study aimed to show how muscle ultrasonographic parameters change in acutely admitted hospitalized older patients.

Methods: Ultrasonographic measurements of the rectus femoris (RF) and the vastus lateralis (VL) muscle, and muscle strength through hand grip strength were performed on the 1st, 8th, and 15th-day of admission to the hospital. The nutritional state of the patients was assessed through the Mini-Nutritional Assessment-Short Form (MNA-SF). The SARC-F (a five-item questionnaire) and FRAIL-scale (short 5-question assessment of fatigue, resistance, aerobic capacity, illnesses, and loss of weight)

were completed as routine screening questionnaires for sarcopenia and frailty, respectively.

Results: A total of 25 community-dwelling patients (60 % female) aged a median of 73 (65-89) years were included in the study. Most patients were at least at risk of malnutrition and sarcopenia on admission according to mean MNA-SF of 9.9 and SARC-F of 4, respectively. Median length of stay is 10 (range 7 to 18) days. Most of the patients were frail as median FRAIL score 3, and admitted predominantly for infection. Two of the patients died during the hospitalization. There was a significant decline in thickness (13.66 ± 2.38 vs. 13.08 ± 2.15 vs. 12.76 ± 2.28 , $p=0.011$), cross-sectional area (5.33 ± 0.82 vs. 5.17 ± 0.79 vs. 5.05 ± 0.77 , $p=0.013$), and angle (7.20 ± 0.84 vs. 7.10 ± 0.74 vs. 6.90 ± 0.86 , $p=0.046$) of the rectus femoris muscle but not in vastus lateralis muscle thickness (11.98 ± 2.64 vs. 11.48 ± 2.59 vs. 11.64 ± 2.52 , $p=0.103$) through the 1st, 8th, and 15th day measurements. Handgrip strength measurements showed non-significant declines among males and females during hospitalization.

Conclusions: Even a short period of hospitalization may result in a significant reduction of ultrasonographic muscle thickness measurement. Acute sarcopenia may be assessed via bedside USG measurements in geriatric inpatients.

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P13-021-24 Association of Dietary Intake with Metabolically Healthy and Unhealthy Obesity Among Filipino Migrant Women in South Korea

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Objectives: This study aimed to investigate the association between adherence to the EAT-Lancet diet, and the prevalence of metabolically healthy obesity (MHO) and unhealthy obesity (MUHO) among Filipino migrant women in Korea.

Methods: The study involved 528 baseline participants from the Filipino Women's Diet and Health Study (FiLWHEL) in 2014-2022. We collected data through a questionnaire and measured the body weight, height, blood pressure, fasting blood lipid profile, insulin, and glucose level. Participants with a BMI of at least 25 kg/m² were categorized as obese. Metabolically unhealthy was defined as having at least two symptoms out of the five criteria, that is blood triglyceride >150 mg/dL, LDL-C >100 mg/dL, HDL-C < 50 mg/dL, HOMA-IR >2.7, and hsCRP >3 mg/dL, or receiving medication. The outcomes were MHO and MUHO, while participants with non-obese BMI were considered as the reference. We collected the dietary data through 24-hour recalls, categorized it into quartiles of food group consumption, and calculating adherence score according to the EAT-Lancet reference diet adapted from the Malmö Diet and Cancer Cohort Study. Polytomous multivariate logistic regression was used to