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EFFECT OF HEMODIALYSIS AND TOTAL BODY WATER PERCENTAGE ON CENTRAL AORTIC BLOOD PRESSURE AND ITS DERIVATIVES IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Nutrition in the prevention and treatment of chronic diseases

Introduction: There is evidence of a relationship between arterial stiffness and high blood pressure in patients with End Stage Renal Disease (ESRD) undergoing hemodialysis. Any isolated or combined alteration is a predictor of cardiovascular disease. The hemodynamic state of the patient is modified by the loss of body fluids.

Objectives: The aim is to study the association between these independent factors, which could help the treatment and prevention of complications, in order to improve the evolution of the chronic degenerative disease.

Methods: Prospective and analytical cross-sectional study. Patients on Hemodialysis for ≥3 months, with ESRD of any etiology, who attended from February-August 2019 for hemodialysis. After signing a consent form, Central Aortic Blood Pressure (CBP) and its derivatives, Pulse Wave Velocity (PWV) and Augmentation Index (AiX) were taken by non-invasive oscillometric method, using a standardized technique, with TensioMed Arteriograph® equipment, 15 minutes before (1) and 15 minutes after (2) the hemodialysis. The percentage of total body water (TBW) loss was calculated by the body segmental electrical bioimpedance technique, before (1) and after (2) the hemodialysis, with a standardized technique.

Results: 25 patients, 18 men and 7 women, with an average age of 62.3±15.4 years. T test of paired samples: CBP1 170.7±37.4, CBP2 154.3±36.4 (p=0.02); AiX1 45.1±12.76, AiX2 34.0±17.6 (p=0.002); PWV1 10.0±1.7, PWV2 10.7±2.0 (p=0.03); TBW1 52.6±8.22, TBW2 51.1±8.49 (p=0.01). We analyze the correlation (r, Spearman) between the variables, only the significant one is shown TBW%/CBP r=.494* p=0.012.

Conclusions: There is a statistically significant difference in CBP and its derivatives when comparing pre and post-hemodialysis values with improvement in all variables studied, including % loss of TBW. It is observed that this loss correlates with the decrease in CBP and not the other variables, suggesting that both arterial stiffness and arterial compliance are independent of the patient's hemodynamic status, so it should be taken into account when prescribing hypertensive treatment.

Conflict of Interest: The authors declare no conflict of interest in this project.

Keywords: Central Aortic Blood Pressure / Hemodialysis / Total Body Water / Blood Pressure / Arterial Stiffness.

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SARCOPENIA IN PATIENTS UNDERGOING DIALYSIS: PREVALENCE AND ASSOCIATION WITH FUNCTIONAL CAPACITY

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Nutrition in the prevention and treatment of chronic diseases

Introduction: Patients with chronic kidney disease (CKD) on dialysis may be affected by sarcopenia, which is a chronic condition that is characterized by a reduction of muscle mass, strength, and physical performance, and it is associated with increased morbidity and mortality.

Objectives: To investigate the prevalence of sarcopenia in patients with CKD undergoing dialysis according to update of the European Working Group on Sarcopenia in Older People (EWGSOP) and, its association with functional capacity (FC).

Methods: Fifty-three dialysis patients (75.5% men) aged 70.1±8.5 participated in this study. Body composition was measured by bioelectrical impedance (BCM, Fresenius Medical Care). Muscle strength and physical performance were evaluated by handgrip strength (kg) and 6-minute walk test (m), respectively. FC was evaluated using 3 validated tests: the chair stand test (time/10 rep.) and the timed chair stand test (repetitions/30 and 60 seconds). The EWGSOP defines sarcopenia as the presence of both low muscle strength (LMS) and low muscle mass (LMM), and severe sarcopenia as the presence of sarcopenia plus low physical performance (LPP).

Results: According to the EWGSOP criteria, the 35.8% of the sample presented LMS (handgrip strength <27 kg <16 kg, men and women respectively) and 17% showed LMM (considering normal values >8.61 kg m-2 in men and >6.19 kg m-2 in women, according to Spanish reference values). Low LPP was observed in 71.7% of patients (less than 400 meters in 6 min). A total of 13.2% of participants presented severe sarcopenia. Deterioration of FC was significantly associated with sarcopenic stage, and with sarcopenic dialysis patients obtaining lower levels of FC compared with no sarcopenic patients (p<0.05), except for the chair stand test (p>0.05). No differences were found between FC and sex.

Conclusions: The prevalence of sarcopenia was 13.2% according to cut points and references used. Dialysis patients

with severe sarcopenia have a significantly lower level of FC, which may have a negative influence on quality of life and carrying out activities of daily living. Sex differences disappear with increasing levels of sarcopenia.

Conflicts of interest: No conflict of interest was declared.

Keywords: Sarcopenia / dialysis / physical performance / functional capacity.

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ADENOVIRUS 36 INCREASED KILOCALORIE AND LIPID CONSUMPTION INTAKE IN A CROSS-SECTIONAL STUDY ON INDIVIDUALS FROM WESTERN MEXICO

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Nutrition in the prevention and treatment of chronic diseases

Introduction: Adenovirus 36 (Ad-36) is associated with the development of overweight and obesity in humans. Most of the research on Ad-36 focuses on the process by which the accumulation of lipids in adipocytes is favored, but there are very few studies aimed at evaluating the effect of the virus on dietary intake.

Objective: To determine the association of Ad-36 on food consumption in healthy and overweight subjects.

Methods: A cross-sectional study included 174 subjects that were recruited from the medical school and nutrition clinics of the Centro Universitario del SUR (CUSUR) in Western Mexico, all of whom answered the semi-quantitative food frequency questionnaire (SFFQ) to assess their eating habits. Their body mass index (BMI) was determined and a blood sample was taken to identify Ad-36, using the ELISA technique. Finally, the participants were classified according to their BMI and the presence of Ad-36, the statistical analysis was performed whit t-test or U-test.

Results: Of the 174 subjects included, 52.3% had a BMI ≥25 kg/m^2 and 47.7% had a BMI <25 kg/m^2. Additionally, 17.2% of the population was positive for Ad-36 antibodies (Ad-36 +), whereas 82.8% was negative for Ad-36 (Ad-36 -). When the study groups were compared, the Ad-36(+) subjects were found to have a higher BMI than the Ad-36(-) individuals (28.13 kg/m^2 vs 25.7 kg/m^2, p= 0.014). There was an increase in the consumption of kilocalories (2861.66 kcal vs 2182.40 kcal, p 0.018) and lipids (95.33g vs 73.67g, p: 0.002) in individuals with a BMI <25 kg/m^2 Ad-36(+), as well. However, in subjects with a BMI ≥25 kg/m^2 there were no significant differences in their food intake.

Conclusions: The presence of Ad-36 was associated with an increase in caloric intake and lipid intake in subjects with a BMI <25 kg/m^2, but not in the group with a BMI ≥25 kg/m^2.

Conflicts of interest: the authors declare no conflict of interest.

Keywords: Adenovirus 36 - SFFQ - obesity.

P070

METABOLIC EFFECT OF INDOL 3 CARBINOL ON ADIPOSITY AND INSULIN RESISTANCE IN RATS WITH HIGH FAT DIET-INDUCED OBESITY

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Nutrition in the prevention and treatment of chronic diseases

Introduction: Obesity (OB) is a disease characterized by increased adipose tissue and hyperinsulinemia associated with the development of insulin resistance (IR) and type 2 diabetes mellitus. The phytochemical Indol 3 carbinol (I3C) is a product of glucosinolates degradation present in vegetables of the cruciferous family Brassica genus, such as broccoli and Brussels sprouts. I3C improves insulin sensitivity and decreases the storage of fatty acids in cultured adipocytes.

Objectives: To assess the effects of I3C on adiposity and IR in an OB model induced by a high-fat diet in rats.

Methods: The study was conducted in male Wistar rats. Eight study groups were formed (n=5 each): one baseline group, three control groups fed high-fat diet (DAG) containing 45.2% fat, for 3, 6 and 9 weeks; three prevention groups that received DAG simultaneously with I3C (250 mg/kg weight, orally) for 3, 6 and 9 weeks; one reversal group that received DAG for 6 weeks and subsequently DAG simultenously with I3C (250 mg / kg body weight, orally) during 3 additional weeks. Body weight was registered, blood glucose and insulin concentration was determined, IR was estimated using the homeostatic evaluation model (HOMA-IR). After sacrifice, adiposity was calculated by quantifying visceral adipose tissue. Data were analyzed with the Kruskal-Wallis and Mann-Whitney U tests, statistical difference was considered when p <0.05.

Results: Decreased body weight, adiposity, circulating insulin and HOMA–IR were observed in the prevention group (9 weeks DAG + I3C) and in the reversal group (6 weeks DAG plus 3 weeks DAG + I3C).

Conclusions: I3C prevents the development of OB and improves IR through the decrease in weight gain and adiposity.

Conflict of Interest: The authors declare no conflict of interest.

Keywords: Obesity / Insulin resistance / Diabetes Mellitus / phytochemicals