P512

THERAPEUTIC ATTITUDES DIFFERENTIATED IN OSTEOPOROSIS INDUCED BY HYPOGONADAL HYPOGONADISM

S.-A. Preda[1], A.-I. Moraru[2]

[1]University of Medicine and Pharmacy, Faculty of Dentistry, [2]University of Medicine and Pharmacy, Faculty of Dental Medicine, Craiova, Romania

Objective: The sexualization process, viewed as a whole, is carried out in stages in time, in a strict order, according to a genetically predetermined biological program, with its own schedule and characteristics. The constructive sexualizing stages, quantitative and qualitative, are separated by periods of time in which there are no sexual changes, but the previously gained elements are associated with the general process of growth. Gonadic insufficiency can be total (agonadism) or partial (hypogonadism). Early diagnosis of gonadal insufficiency requires the implementation of prophylactic therapeutic measures of bone changes from the prepubertal stage in order to ensure a maximum bone mass corresponding to sex and age[1-5].

Methods: The study was performed on 38 patients of whom: late puberty (18 cases), premature ovarian failure (20 cases). Clinical and paraclinical criteria were used to establish the etiological diagnosis. In all cases, gonadotropic and gonadal hormones were evaluated., biochemical markers of bone turnover (osteocalcin, CrossLaps), BMD was evaluated through DXA.

Results: Low gonadotropic hormone values advocate for hypogonadotropic hypogonadism. Osteoporosis was observed on 27 cases (71% - 10 cases of late puberty, 17 cases of premature ovarian failure). The rest of the cases had osteopenia.

Conclusion: Early diagnosis of gonadal insufficiency is required in order to take prophylactic measures of bone changes.

References:

1. Constantin C et al. Rev Chim (Bucharest) 2019;70:2401.
2. Popescu SM et al. Rev Chim (Bucharest) 2019;70:1439.
3. Enescu AS et al. Rom J Morphol Embryol 2014;55:1383.
4. Enescu AS et al. Rom J Morphol Embryol 2017;58:145.
5. Enescu AS et al. Rom J Morphol Embryol 2013;54:969.

P513

THE ASSOCIATION BETWEEN ANEMIA AND SARCOPENIA AMONG OLDER ADULTS

C.-F. Huang[1], D.-Y. Liu[2], S. Y. Lin[1], T.-Y. Mao[3]

[1]Department of Family Medicine, National Yang-Ming University Hospital, Yilan City, [2]Department of Health and Leisure Management, St. Mary's Junior College of Medicine, Nursing and Management, Yilan City, [3]Department of Leisure Services Management, Chaoyang University of Technology, Taichung City, Taiwan

Objective: Anemia is associated with decreased muscle strength, instrumental activity of daily living disability, decline in physical performance, and poor mobility. Additionally, anemia, a frequent complication of chronic kidney disease, may cause an increase in the risk of sarcopenia. Therefore, the association between anemia and sarcopenia in older people is a vital issue worth exploring.

Methods: We conducted a cross-sectional observational study, which enrolled a total of 346 older residents of nursing home (201 women and 145 men, age 65 and older) (mean age±standard deviation 79.5±7.3). The participants underwent comprehensive anthropometric measures and physiological exams to determine their anemic and sarcopenic status. The subjects with lower than normal hemoglobin levels (13 g/dL as the standard for males and 12 g/dL for females) were considered to have anemia. Sarcopenia was defined as low muscle mass plus low muscle strength and/or low physical performance under the Asian Working Group for Sarcopenia (AWGS) criteria.

Results: We observed the trend of increase in the prevalence of sarcopenia in older people with anemia, especially in men. The probability of sarcopenia with anemia rose after adjustment of age and BMI in men (OR=2.67). Besides, through multinomial logistic regression models by age, grip strength, and anemia, the overall probability of sarcopenia was 82.76% (the probability of sarcopenia=0.69 x age - 1.48 x grip strength - 0.47 x anemia - 0.43) in men.

Conclusion: Although chronic kidney disease has been proved to be one of the risk factors for sarcopenia, its effect may be eliminated if there is no anemia. Briefly, the study revealed that lower levels of hemoglobin could be an independent risk factor of sarcopenia among older adults.

P514

MUSCLE STRENGTH EVALUATED USING THE HAND-HELD DYNAMOMETER MICROFET2 IN OLDER ADULTS: A RELIABILITY STUDY

M. Locquet[1], C. Beaudart[1], J.-Y. Reginster[1], O. Bruyère[1], J.-L. Croisier[2]

[1]University of Liège, Division of Public Health, Epidemiology and Health Economics, [2]University of Liège, Laboratory of Human Motion Analysis, Liège, Belgium

Objective: To assess the reliability of the hand-held dynamometer MicroFET2 aiming at evaluating isometric leg strength among older adults.

Methods: Participants came from the SarcoPhAge cohort (for Sarcopenia and Physical Impairment with Advancing Age), a study aiming at assessing muscle health in older adults aged 65 y and over. The isometric muscle strength of knee extension was assessed using two methods. First, using the hand-held dynamometer MicroFET2 using the user's hand counter-resistance. Second, the MicroFET2 has been fixed to a wall to stabilize it. Therefore, the counter-resistance by the investigator's hand was no longer necessary. Both handheld strength measurement and wall-fixed strength measurement were performed; 1/at baseline with investigator 1, 2/after 2 h with investigator 1 (to measure intra-observer agreement), 3/after 2 h with investigator 2 (to measure inter-observer agreement). Standardized protocol was applied and standardized instructions were given by both investigators. Intraclass coefficients (ICC) and their confidence intervals (95%CI) were computed to assess the reliability of the device.

Results: 100 community-dwelling older adults were enrolled in this study (77.0±5.7 y, 57.0% of women). For the intra-observer reliability, the test-retest with the same investigator yielded an ICC of 0.934 (0.887-0.962) with the additional device and an ICC of 0.877 (0.718-0.939) with the hand-held MicroFET2 only. For the inter-observer reliability, the test-retest with the two different investigators yielded an ICC of 0.773

(0.633-0.864) with the additional device and an ICC 0.113 (0.004-0.266) of with the hand-held MicroFET2 only.

Conclusion: The MicroFET2 used as a hand dynamometer was not reliable in our older population probably because on the strength of the counter-resistance yielded by the different investigators. The MicroFET2 wall-fixed device obtained good reliability, especially in inter-observer conditions, but requires a logistical investment.

P515

PERFORMANCE OF THE "YUBI-WAKKA (FINGER-RING)" TEST AS SELF-SCREENING METHOD FOR SARCOPENIA USING THE SARCOPHAGE, BELGIAN COHORT STUDY

C. Beaudart[1], M. Locquet[1], L. Lengelé[1], J.-Y. Reginster[1], O. Bruyère[1]
[1]University of Liège, Division of Public Health, Epidemiology and Health Economics, Liège, Belgium

Objective: Last year, a very original and easy-to-use self-screening method for sarcopenia was introduced by Tanaka et al. The "Yubi-wakka (finger-ring)" test checks whether the maximum non-dominant calf circumference is bigger than the individual's own finger-ring circumference and is used as a screening method for sarcopenia. We aim to measure the performance of this new screening method in a Belgian study by measuring its specificity (Sp), sensibility (Se), positive and negative predictive values (PPV, NPV) against a clinical diagnosis of sarcopenia.

Methods: We applied procedure during the 5-year follow-up examination of the Belgian SarcoPhAge (Sarcopenia and Physical impairments with advancing Age) cohort, a population-based study including individuals aged 65 years and older. Sarcopenia was diagnosed according to the revised criteria of EWGSOP2. Muscle mass was measured by daily-calibrated Dual-Energy x-ray absorptiometry and muscle strength was measured using a calibrated Jamar handheld dynamometer. Participants were asked to apply a self-screening for sarcopenia using the finger-ring test. Participants were classified "bigger", "just fit" or "smaller" based on the comparison between their right calf-circumference and the right finger-ring circumference (formed by the thumb and the forefinger of both hands).

Results: 272 participants were included in this analysis (mean age of 77.5±5.37 years, 53.2% of women), with 32 participants diagnosed sarcopenia according to EWGSOP2 criteria (11.8%). Using a classification with both "just fit" or "smaller" as being at risk of sarcopenia, we found the following results: Se=68.7%, Sp=46.2%, PPV=14.6%, NPV=91.7% and accuracy=48.9%. Using the solely criteria of "smaller" as being at risk of sarcopenia, we found the following results: Se=53.1%, a Sp=78.3%, PPV=24.6%, NPV=92.6% and accuracy=75.4%.

Conclusion: The overall probability that a participant is correctly classified as sarcopenic using the "Yubi-wakka (finger-ring) test" in our population is increased when the calf-circumference is smaller than the finger-ring circumference of this same participant. This extremely practical method of self-screening of sarcopenia has been shown, for the very first time, to have a moderate sensitivity and acceptable specificity in regards to sarcopenia diagnosis. As comparison, the SARC-F questionnaire, a well-known screening test for sarcopenia has an even lower sensitivity but a better specificity[1].

Reference: 1. Hajaoui M et al. J Am Med Dir Assoc 2019;20:1182

P516

ARE MATRIX METALLOPROTEINASE BREAKDOWN PRODUCTS ASSOCIATED WITH MUSCULOSKELETAL HEALTH IN OLDER MALE ADULTS? FINDINGS FROM THE HERTFORDSHIRE COHORT STUDY

H. S. Morgan[1], N. R. Fuggle[1], M. A. Clynes[1], K. A. Jameson[1], P. Titcombe[1], C. Cooper[1], E. M. Dennison[1]
[1]MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, UK

Objective: Matrix metalloproteinases (MMPs), responsible for collagen degradation, have been detected in osteoblasts, osteocytes, osteoclasts, and chondrocytes in bone tissue, where they are known to perform specific functions. Furthermore, they play an important role in the homeostasis and maintenance of myofibre functional integrity in skeletal muscle. We therefore aimed to identify whether there was an association between MMP-breakdown products and musculoskeletal health in older adults from a community dwelling UK cohort.

Methods: 259 male participants in the Hertfordshire Cohort Study (HCS) attended a study clinic where a lifestyle questionnaire was administered and fasting blood samples were taken and tested for MMP breakdown products [MMP-degraded type 1 collagen (C1M), MMP-degraded type III collagen (C3M) and citrullinated and MMP-degraded vimentin (VICM)]. We investigated associations between levels of MMP breakdown products and history of previous fall or fracture. Grip strength was measured using a Jamar dynamometer. BMD at the total hip and lumbar spine was measured in a subset using a Hologic QDR 4500 instrument. Linear regression was used to examine associations in both unadjusted models and those adjusted for age, BMI, social class, smoker status, alcohol consumption, physical activity score and dietary calcium intake

Results: Mean age of study participants was 65.6 y (SD=2.9) and median BMI was 26.9 kg/m^2 (IQR=24.6-29.4). Median values of MMP breakdown products were 49.2 ng/ml (C1M), 22.0 ng/ml (C3M) and 2.20 ng/ml (VICM). There was no significant association between MMP breakdown products and BMD, or history of previous falls or fracture. A weak negative association was found between C1M and grip strength (β coefficient=-0.020 (95%CI=-0.039, - 0.002), p=0.031) but this was not maintained after adjustment for confounders.

Conclusion: We found no association between MMP breakdown products and musculoskeletal health in this male cohort after adjustments. Studies in women are, however, warranted.

P517

EPIDEMIOLOGY AND ISSUES OF THE REGISTRY OF SYSTEMIC LUPUS ERYTHEMATOSUS IN KAZAKHSTAN

B. Issayeva[1], M. Saparbayeva[1], S. Issayeva[1], M. Kulshymanova[1], S. H. Kaiyrgali[1], M. Bizhanova[1], K. Nurgaliyev[1], B. Kulymbetova[2], K. Rysbekova[2], S. Solovyev[3], E. Aseeva[3]