

POSTER SESSION

POSTERS' SESSION P23:

WOMEN AND AGEING

BODY COMPOSITION, FRAILITY AND ARTERIAL STIFFNESS IN THE OLDER ADULT. THE AGA@4LIFE PROJECT

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Objective: Age-related sarcopenia plays an important role in the functional status of the elder. Impairment in blood vessel dynamics has been pointed out as a potential mechanism for this age-dependent loss in total lean mass. This study is aimed at determining to which extent arterial stiffness (AS), expressed as aortic pulse wave velocity (PWV) correlates with body composition parameters and frailty.

Design and method: Cross-sectional, observational study of older adults. Blood pressure and arterial function parameters were measured with a validated device. Clinical and demographic information was gathered, as well as the estimation of global cardiovascular risk, health related quality of life, dietary profile and cognition. Cholesterol and glycaemia were measured.

Results: Fifty four participants recruited, with a mean age 73.0 ± 6.0 years (65–94 years). Mean pulse wave velocity (PWV) was 10.6 ± 1.36 m/s and the augmentation index was $27.0 \pm 17.6\%$. Significant inverse correlations were found between PWV and total lean mass (adjusted-R = -0.466 ; $p = .007$). Also, inverse significant correlation was depicted between PWV and the handgrip strength (adjusted-R = -0.512 ; $p = .001$), the 30 s sit-to-stand test (adjusted-R = -0.384 ; $p = .016$) and marginally with the Step test (adjusted-R = -0.297 ; $p = .06$). Conversely, lean mass was positively associated with the handgrip strength, the Step test, the 30 s sit-to-stand test and the 4 stage balance test.

Conclusions: The association between AS, lean mass and functional status of the elderly suggests an interplay between the arterial health and the overall well-being, and AS seems to be mechanically associated with skeletal muscle mass decline in the elderly.

On behalf of the AGA@4life Consortium. This work is co-financed by the European Regional Development Fund (ERDF), through the partnership agreement Portugal 2020 - Regional Operation Program CENTRO2020, under the project CENTRO-01-0145-FEDER-023369 AGA@4life: AGA - Comprehensive Geriatric approach to promote an active and healthy aging - implementation of an integrated and multidisciplinary intervention program

RELATIONSHIP BETWEEN INDICATORS OF PULSE WAVE AND BONE MINERAL DENSITY IN ELDERLY AGED WOMEN WITH UNCOMPLICATED HYPERTENSION

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Objective: To compare the indices of aortic blood pressure (ABP) and pulse wave, bone mineral density (BMD) in elderly female patients with mild-moderate uncomplicated arterial hypertension (AH)

Design and method: 44 women with AH stage I-II and 30 practically healthy women were involved to the study. Groups didn't differ in age (correspondingly 69.1 ± 0.7 ; 69.3 ± 1.2 years), average duration of postmenopausal period (18.4 ± 0.9 ; 19.4 ± 1.2 years). All the patients underwent general clinical and a laboratory examination, a daily monitoring of blood pressure (BP) and echocardiography. Pulse wave analysis (SphygmoCor) parameters—ABP, augmentation pressure (AP), index (AIx), at heart rate 75 (AIx75), amplification pressure (PPampl.) were assessed. BMD was examined with Hologic Discovery device. To assess the quality of bone tissue (Trabecular Bone Score — TBS), the TBS iNsite technique, developed by Med-Imaps (France), was used.

Results: The patients with AH and those of the control group were matched by age, body mass index, BP, ABP and the level of markers of bone remodeling.

A decrease in BMD was found in 13 (75%) patients of the main group - in 25 (56.8%) women osteopenia, in 8 osteoporosis (18.2%). In the control group BMD disturbances were detected in 11 (36.7%) women - 7 (23.3%) had osteopenia, and 4 (13.3%) osteoporosis. Patients with AH had a positive correlation between PPampl. and BMD indices of the total body ($r = +0.463$, $p < 0.01$), lumbar spine (L1—L4) ($r = +0.353$, $p < 0.05$), the ultra-distal forearm bones ($r = +0.463$, $p < 0.01$) and the TBS ($r = +0.411$, $p < 0.01$). A negative correlation between AIx, AIx75 and the value of the T-score in the total skeleton ($r = -0.415$, $p < 0.01$; $r = -0.366$, $p < 0.05$), (L1—L4) ($r = -0.369$, $p < 0.05$; $r = -0.381$, $p < 0.01$), neck of the right femur ($r = -0.327$, $p < 0.05$; $r = -0.237$, $p > 0.05$), neck of the left femur ($r = -0.382$, $p < 0.01$; $r = -0.186$, $p > 0.05$) and the ultra-distal forearm bones ($r = -0.344$, $p < 0.05$; $r = -0.274$, $p > 0.05$). Positive AP, AIx, AIx75 and FRAX-all ($r = +0.399$, $p < 0.01$; $r = +0.440$, $p < 0.01$; $r = +0.340$, $p < 0.05$)

Conclusions: Elderly women with AH and elevated vascular stiffness (according to applanation tonometry) have decreased BMD compared with practically healthy women of comparable age

DETERMINANTS OF CENTRAL BLOOD PRESSURE AND REFLECTED WAVES IN THE OLDER ADULT – THE AGA@4LIFE PROJECT

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Objective: To study the determinants of central Blood pressure (cBP) and reflected waves (RW) in the elderly.

Design and method: Cross-sectional, observational study of elderly participants. Blood pressure and arterial function parameters were measured with a validated device. Clinical and demographic information was gathered, as well as the estimation of global cardiovascular risk, health related quality of life, dietary profile and cognition. Cholesterol and glycaemia were measured.

Results: Fifty four participants recruited, with a mean age 73.0 ± 6.0 years (65–94 years); cBP was 119.4 ± 16.2 mmHg and 38.3 ± 11.6 mmHg, respectively for aortic systolic (cSBP) and pulse (cPP) pressures. Mean augmentation index (AIx) was $27.0 \pm 17.6\%$, and mean AIx corrected for heart rate (AIx@75) was $30.2 \pm 12.9\%$. Regarding the cSBP and cPP, main determinants were body mass index, presence of arterial hypertension, presence of dyslipidemia and total vascular resistance (TVR). As for the reflected wave indexes, main determinants were TVR, handgrip strength (frailty) and lean mass.

Significant inverse correlations were found between AIx and the AIx@75 and the results of functional tests, mainly the handgrip strength, the 30 s sit-to-stand, the 4 stage balance test and the self-efficacy for exercise score, thus indicating that functional status was worst for increasing levels of AIx and AIx@75.

Conclusions: Central BP and the reflected wave dynamics in the elderly are closely related to body composition, vascular resistance and presence of hypertension. A close link between the reflection indexes and the functional status of the elderly suggests an important interplay between the arterial health and the overall well-being in this population.

On behalf of the AGA@4life Consortium. This work is co-financed by the European Regional Development Fund (ERDF), through the partnership agreement Portugal 2020 - Regional Operation Program CENTRO2020, under the project CENTRO-01-0145-FEDER-023369 AGA@4life: AGA - Comprehensive Geriatric approach to promote an active and healthy aging - implementation of an integrated and multidisciplinary intervention program

EFFECTS OF A PERSONALIZED PHYSICAL EXERCISE PROGRAM IN THE ARTERIAL STIFFNESS AND COGNITIVE FUNCTION IN OLDER ADULTS – THE AGA@4LIFE INTERVENTION MODEL

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Objective: Ageing is associated with a progressive decline in cognitive function and with arterial stiffening (AS), both occurring according to heterogeneous trajectories, dependent on manifold determinants. To tackle this major challenge, we designed a project to test the effect of a tailored physical exercise intervention