P18: Evaluation Of Muscle Function In Pre And Postmenopausal Women

Y Dionyssiotis [1,2], A Galanos [1], GMichas [1], GP Lyritis [1], N Papaioannou [1]

1. Laboratory for Research of the Musculoskeletal system, University of Athens, KAT Hospital, Kifissia, Greece
2. Rehabilitation Department, Rhodes General Hospital, Rhodes Island, Greece

idiony@otenet.gr

Aim: The treatment of osteoporosis which focuses only on bones ignores muscle function and balance elements directed connected with this disease, the prevention of falls and fractures. Our purpose was to study kinetic parameters of pre and postmenopausal women which influence balance and muscle function.

Material - Methods: Two hundred thirty seven women were included in the study separated in three groups: Group A included 61 osteoporotic postmenopausal taken anti-osteoporotic drugs and calcium/vitamin D supplementation (mean age 65±9.6 years), group B consisted of 117 healthy postmenopausal women (mean age 62.9±9.8 yrs),and group C included 59 healthy pre-menopausal women (mean age 35±7.6 yrs).For the measurement of objective parameters of movement we used the mechanography system in Leonardo platform (Novotec, Pforzheim, Germany) which measures forces, calculates through acceleration the vertical velocity of centre of gravity and also using force and velocity it calculates power of vertical movements. After explaining in all participants the process, they jumped on the platform (two leg jump) .Weight was recorded on the platform before the jump and height was measured with a wall-mounted ruler.

Results-Conclusions: The anthropometric values and the kinetic parameters of the study population are presented in the following table.

COUNTING PARAMETERS	GROUP A (n=61)	GROUP B (n=117)	GROUP C (n=59)	Anova p value
weight Kg	63.6±8.9***	66.4±9.3***	62.3±10	0.016
height cm	158±4.00**	161±5.00	165±4.00	<0.0001
BMI Kg/m²	25.24±3.85***	25.7±3.69***	22.76±3.50	<0.0001
force max rel KN	1.89±0.21**	1.86±0.31**	2.17±0.24	0.001
velocity m/sec	1.33±0.42***	1.4±0.53***	1.79±0.49	<0.0001
power N/m²	1.2±0.45***	1.32±0.54***	1.79±0.52	<0.0001
power/weight NxKg/m²	19.68±7.9***	20.67±8.38***	29.6±11.45	<0.0001
jump height m	0.17±0.08***	0.17±0.06***	0.24±0.11	<0.0001

*** p< 0.0005 , ** p < 0.005 , * p < 0.05 vs Group B (Bonferroni post-hoc)

In groups A, B all kinetic parameters were statistically decreased in comparison with group C. Height decreased significant with age. The results suggest that in all postmenopausal women a decline in the kinetic parameters is expected. Jumping mechanography gives to the clinician additional information in order to prevent falls and fractures in postmenopausal women.