Smart action medical service for osteoporosis among people with veterans in south Taiwan

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Introduction

Osteoporosis is the most likely cause of falls and dementia in the elderly community. Encouraging the elderly with osteoporosis to exercise regularly every week can help these elderlies maintain their muscle strength and reduce the risk of falls. Health is a very important issue in these populations. Good fitness is related to physical activity and healthy lifestyle. Therefore, fitness training is very important to people with osteoporosis.

Purpose

We aim to investigate the satisfaction of smart action medical service among people with veterans and to investigate the prevalence of osteoporosis. We also aim to investigate the effect of task-oriented rehabilitation on osteoporosis among people with veterans.

Methods

This method is based on randomized control study. We will include 40 people with osteoporosis among people with veterans and distribute to control group and experimental group by randomization. The experimental group will receive task-oriented rehabilitation, and the control group will receive video home training and education. Bone density examination, body component analysis, handgrip muscle strength, lower limb muscle power, time up and go test, gaits peed(10MWT), WHO Quality of Life BREF (WHOQOL-BREF) and satisfaction evaluation will be tested at baseline, on the third month and the fourth month.

Results

Out of 40 randomized subjects, 22 completed all aspects of the study protocol. Compared to the control group, the experimental group improved significantly on time up and go test (P=0.044) from Week 12 to Week 16. The experimental group also improved significantly on 10MWT (P = 0.031) from Week 12 to Week 16. Compared with the CG, WHOQOL-BREF (P = 0.014) significantly from week 0 to 12. The chair stand test (P = 0.045), handgrip muscle strength of left hand (P = 0.018) significantly increased from week 12 to 16.

Table1、The comparisons of other outcome measure changes between groups

Parameters	Experimental group(EG) (n=10)					control groups(CG) (n=12)					EG VS CG prcent change	
	Week0	Week12	Week16	week 0 to week 12	week 12 to week 16	Week0	Week12	Week16	week 0 to week 12	week 12 to week 16	Change week 0 to week 12	Change week12to week 16
	Mean(SD)	Mean(SD)	Mean(SD)	P-value	P-value	Mean(SD)	Mean(SD)	Mean(SD)	P-value	P-value	P-value	P-value
Grip strength												
Left hand	25.70(5.21)	27.10(6.67)	27.00(6.31)	0.222	0.885	23.50(7.86)	24.58(7.82)	22.42(8.52)	0.237	0.018***	0.818	0.063
Right hand	26.50(7.74)	26.50(7.72	26.50(7.72)	1.000	0.074	24.00(9.25)	22.67(8.93)	22.00(8.93)	0.229	0.266	0.315	0.670
The chair stand test	8.70(1.95)	9.10(1.37)	8.90(2.33)	0.494	0.764	8.58(3.53)	8.50(2.97)	9.75(3.57)	0.809	0.045***	0.452	0.102
One leg standing												
Left leg	4.11(4.34)	6.10(6.41)	6.88(8.77)	0.332	0.704	10.41(11.52)	24.81(41.06)	15.89(21.25)	0.139	0.231	0.204	0.236
Right leg	6.48(7.78)	5.84(5.19)	6.37(8.36)	0.638	0.734	29.43(8.50)	24.51(7.07)	22.77(6.58)	0.771	0.934	0.662	0.816
TUG(seconds)	14.04(3.03)	14.52(4.56)	15.29(6.00)	0.480	0.194	12.46(6.07)	12.54(6.34)	11.86(5.99)	0.883	0.128	0.630	0.044***
10MWT(m)	12.62(4.30)	13.64(5.14)	14.76(6.06)	0.199	0.031***	11.67(6.29)	11.47(5.51)	11.59(5.92)	0.532	0.795	0.120	0.143
Kihon Checklist	11.10(5.20)	11.90(6.84)	11.10(6.95)	0.505	0.448	9.42(4.87)	8.25(5.55)	8.00(5.26)	0.152	0.735	0.157	0.654
WHOQOL-BREF	3.40(0.44)	3.44(0.40)	3.46(0.47)	0.776	0.844	3.54(0.35)	3.73(0.39)	3.81(0.31)	0.014***	0.392	0.272	0.695

TUG="timed up and go test";10MWT=The 10-m walk test;WHOQOL-BREF= World Health Organization Quality of Life Instrument
*p<0.001,**p<0.01,***p<0.05

Conclusions& Comments

Task-oriented mobile training can improve balance and cardiorespiratory endurance for people in southern regions with osteoporosis. It can reduce the risk of falls and improve the quality of daily life.

Key word : task-oriented model, physical fitness, osteoporosis

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