QUALITY OF LIFE IN WOMEN WITH POSTMENOPAUSAL OSTEOPOROSIS DURING THE SARS-CoV-2 PANDEMIC

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Abstract

Osteoporosis can affect the quality of life in women who suffer from this condition. The aim of the article was to observe the dynamics of quality of life from year to year among women with postmenopausal osteoporosis. Subjects included in the study completed the QUALEFFO-41 questionnaire, a questionnaire specifically designed to measure quality of life. At the end of the study, worsening of the quality of life was observed in all areas covered by the QUALEFFO-41 questionnaire.

Introduction

Osteoporosis negatively affects patients' quality of life, by limiting their daily activities and independence. Chronic pain generated by osteoporosis can lead to anxiety, depression, frustration and social isolation.

Back pain as a consequence of vertebral fractures has a significant impact on osteoporotic patients [11], [15], [8], [3], [17]. These pains to a greater or lesser extent hinder patients' ability to carry out their daily activities [20], [14]. Patients with back pain are sometimes unable to work [16], are limited in their social and recreational activities [9] and are emotionally stressed. The high number and severity of vertebral and hip fractures is associated with decreased quality of life [3], [17].

There are studies that confirm the need to exercise to improve the quality of life in people with osteoporosis [18], [2]; exercise plays an important role in improving cognitive function and mental health in the people concerned [19], [21], [4], [1], [7], [12], [13], [5], [6] increasing patients' confidence that they can independently perform daily tasks [22].

Methods

The aim of the article is to highlight the effects of sedentary lifestyle on the quality of life in women with osteopenia /

postmenopausal osteoporosis. Thirty women with osteopenia / osteoporosis (53.8 ± 3.9 years) were included in the study. A questionnaire for quality of life assessment (QUALEFFO-41) was applied to them before the outbreak of the pandemic and after the relaxation of emergencies. A score as low as possible on the QUALEFFO-41 test represents a better quality of life, while a high result represents a lower quality of life. Subjects did not participate in any exercise program during this period. The results obtained were interpreted using the SPSS program (v. 26). The Shapiro-Wilk test was performed for data distribution, and non-parametric Wilcoxon test was performed to compare the initial and final results. This questionnaire includes 41 questions, including six visual scales, covering the areas: pain, daily activities, activities carried out around the household, mobility, social activities, perception of general health and mental function.

Results and discussions

For the pain domain, subjects experienced a worsening (Δ% = 32.07%) at the end of the study (*M* = 52.17, *SD* = 19.42), compared to the initial test (*M* = 39.50, *SD* = 18.54), the nonparametric Wilcoxon test showing that the difference is statistically insignificant, *Z* = -2.57, *p* = .010, r = 0.47.

Also statistically significant was the difference observed for the ADL domain, where there was a worsening of 32.61 percent at the end of the study (12.71 ± 5.56) compared to the initial testing (9.58 ± 4.26), *Z* = -2.87, *p* = .004, *r* = 0.52.

Table 1. Baseline and Post-Testing Results For QUALEFFO-41

	Pre	**Post**	***p***	***ES***
Pain	39.50±18.54	52.17±19.42	.010	0.47
Activities of Daily Living	9.58±4.26	12.71±5.56	.004	0.52
Jobs Around the House	11.17±10.14	12.83±10.06	.013	0.45
Mobility	10.30±3.57	11.58±4.16	.017	0.52

Leisure, Social Activities	58.42±6.06	62.84±4.91	.001	0.65
General Health Perception	45.83±16.63	58.89±8.74	.001	0.62
Mental Function	35.74±10.69	44.44±8.38	.001	0.64

Note. Results and represented as mean and standard deviation (±); *E*S = effect size.

For Jobs Around the House domain, subjects recorded a 14.93 percent higher score after one year (12.83 ± 10.06) compared to the initial time (11.17 ± 10.14), $Z = -2.49$, $p = .013$, $r = 0.45$.

For the mobility field, the subjects registered a higher average at the final testing ($M = 11.58$, $SD = 4.16$) compared to the initial testing ($M = 10.30$, $SD = 3.57$), being an increase of 12.43%, the difference being statistically significant , $Z = -2.83$, $p = .017$, $r = 0.52$.

And in the field of social activities, the subjects registered an increase of 7.58% at the end of the study ($M = 62.84$, $SD = 4.91$) compared to the initial testing ($M = 58.42$, $SD = 6.06$), the difference being statistically significant, $Z = -3.56$, $p < .001$, $r = 0.65$.

Also, in the general health field, the subjects registered a statistically significant increase (Δ% = 28.49%), $Z = -3.39$, $p = .001$, $r = 0.62$.

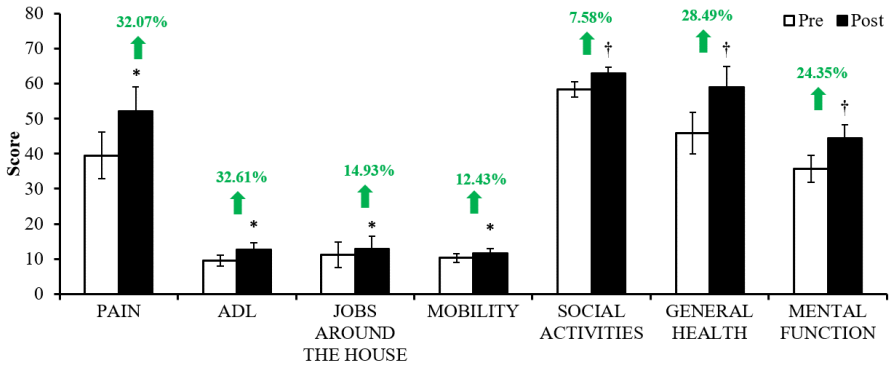

Figure 1. Pre and post-test results with a 95% confidence interval for the variables of the quality of life assessment questionnaire; The symbol (*) indicates intra-group difference ($p < .05$); The symbol (†) indicates intra-group difference ($p < .001$).

In the last domain (mental function), subjects experienced a worsening (Δ% = 24.35%) at the end of the study ($M = 44.44$, $SD = 8.38$) compared to the initial test ($M = 35.74$, $SD = 10.69$), the

nonparametric Wilcoxon test showing that the difference is statistically significant, $Z = -3.48$, $p < .001$, $r = 0.64$.

Conclusion

In conclusion, the lack of exercise during the pandemic has greatly influenced the quality of life in patients with osteopenia / postmenopausal osteoporosis.

References:

[1] Ainsworth, B., Sternfeld, B., Slattery, M., Daguise, V., & Zahm, S. (1998). Physical activity and breast cancer: evaluation of physical activity assessment methods. *Cancer, 83*(3), 611-620.

[2] Bonaiuti, D., Arioli, G., Diana, G., Franchignoni, F., Giustini, A., Monticone, M., . . . Maini, M. (2005). SIMFER rehabilitation treatment guidelines in postmenopausal and senile osteoporosis. *Europa Medicophysica, 41*(4), 315-337.

[3] Boonen, S., Autier, P., Barette, M., Vanderschueren, D., Lips, P., & Haentjens, P. (2004). Functional outcome and quality of life following hip fracture in elderly women: a prospective controlled study. *Osteoporosis International, 15*(2), 87-94.

[4] Chlebowski, R. (2013). Nutrition and physical activity influence on breast cancer incidence and outcome. *Breast, 22*(2), S30-S37.

[5] Curl, W. W. (2000). Aging and exercise: are they compatible in women? *Clinical Orthopaedics and Related Research, 372*, 151-158.

[6] DiPietro, L. (2001). Physical Activity in Aging: Changes in Patterns and Their Relationship to Health and Function. *The Journals of Gerontology, 56*(2), 13-22.

[7] Eriksen, W., & Bruusgaard, D. (2004). Do physical leisure time activities prevent fatigue? A 15 month prospective study of nurses`aides. *British Journal of Sports Medicine, 38*(3), 331-336.

[8] Fink, H. A., Ensrud, K. E., Nelson, D. B., Kerani, R. P., Schreiner, P. J., Zhao, Y., . . . Nevitt, M. C. (2003). Disability after clinical fracture in postmenopausal women with low bone density: the fracture intervention trial (FIT). *Osteoporosis International, 14*(1), 69-76.

[9] Follick, M. J., Smith, T. W., & Ahern, D. K. (1985). The sickness impact profile: a global measure of disability in chronic low back pain. *Pain, 21*(1), 67-76.

[10] Gold, D. T., Stegmaier, K., Bales, C. W., Lyles, K. W., Westlund, R. E., & Drezner, M. K. (2009). Psychosocial Functioning and Osteoporosis in Late Life: Results of a Multidisciplinary Intervention. *Journal of Womes's Health, 2*(2), 149-155.

[11] Hallberg, I., Rosenqvist, A. M., Kartous, L., Lofman, O., Wahlstrom, O., & Toss, G. (2004). Health-related quality of life after osteoporotic fractures. *Osteoporosis International, 15*(10), 834-841.

[12] King, A., Oman, R., Brassington, G., Bliwise, D., & Haskell, W. (1997). Moderate-intensity exercise and self-rated quality of sleep in older adults. A randomized controlled trial. *JAMA, 277*(1), 32-37.

[13] McMurray, R., Ainsworth, B., Harrell, J., Griggs, T., & Williams, O. (1998). Is physical activity or aerobic power more influential on reducing cardiovascular disease risk factors? *Medicine and Science in Sports and Exercise, 30*(10), 1521-1529.

[14] Nevitt, M. C., Ettinger, B., Black, D. M., Stone, K., Jamal, S. A., Ensrud, K., . . . Cummings, S. R. (1998). The Association of Radiographically Detected Vertebral Fractures with Back Pain and Function: A Prospective Study. *Annals of Internal Medicine, 128*(10), 793-800.

[15] Oleksik, A. M., Ewing, S., Shen, W., Schoor, N. M., & Lips, P. (2005). Impact of incident vertebral fractures on health related quality of life (HRQOL) in postmenopausal women with prevalent vertebral fractures. *Osteoporosis International, 16*(8), 861-870.

[16] Painter, J. R., Seres, J. L., & Newman, R. I. (1980). Assessing benefits of the pain center: Why some patients regress. *Pain, 8*(1), 101-113.

[17] Papaioannou, A., Kennedy, C. C., Ioannidis, G., Sawka, A., Hopman, W. M., Pickard, L., . . . Adachi, J. D. (2009). The impact of incident fractures on health-related quality of life: 5 years of data from the Canadian Multicentre Osteoporosis Study. *Osteoporosis International, 20*(5), 703-714.

[18] Papaioannou, A., Morin, S., Cheung, A. M., Atkinson, S., Brown, J. P., Feldman, S., . . . Leslie, W. D. (2010). 2010 clinical practice guidelines for the diagnosis and management of osteoporosis in Canada: summary. *CMAJ, 182*(17), 1864-1873.

[19] Pines, A. (2009). Lifestyle and diet in postmenopausal women. *Climacteric: The Journal of the International Menopause Society, 12*(1), 62-65.

[20] Silverman, S. L., Minshall, M. E., Shen, W., Harper, K. D., & Xie, S. (2001). The relationship of health-related quality of life to prevalent and incident vertebral fractures in postmenopausal women with osteoporosis: results from the Multiple Outcomes of Raloxifene Evaluation Study. *Arthritis & Rheumatology, 44*(11), 2611-2619.

[21] Takacs, J. (2014). Regular physical activity and mental health. The role of exercise in prevention and intervention of depressive disorders. *Psychiatria Hungarica, 29*(4), 386-397.

[22] Villiers, T. d., Gass, M., Haines, C., Hall, J., Lobo, R., Pierroz, D., & Rees, M. (2013). Global Consensus Statement on menopausal hormone therapy. *Maturitas, 74*(4), 391-392.