



Clinical Research

# Features of Joint Lesions in Women with Co-Morbidity of Osteoarthritis and Osteoporosis Based On the Constitution

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## Abstract

In this paper, the features of joint lesions in women with co-morbidity of osteoarthritis and osteoporosis based on the constitution were presented. It was found that the combined lesions of the knee joints with the small joints of the hands, knee joints combined with the first metatarsophalangeal joint, as well as isolated osteoarthritis of the knee joint were significantly more frequently identified in patients with a mesosome constitution. Combined defeat of knee joints with hip joints was found to occur in patients with megalosome constitution. IJBM 2012; 2(3):183-185. © 2012 International Medical Research and Development Corporation. All rights reserved.

**Key words:** *osteoarthritis, osteoporosis, constitution.*

## Introduction

Osteoarthritis (OA) and osteoporosis (OP) are among the most common diseases occurring in the elderly and those of senile age [1]. Until recently, their combination was considered quite rare, despite the high prevalence of such diseases. However, later OA and OP were found to occur in combination [1, 2]. Both diseases lead to a significant functional impairment of the musculoskeletal system, causing a high percentage of disability in patients, which led to the social and economic significance of these disease forms [3, 4]. In light of this, currently, a keen interest has been kindled in the study of co-morbidity of OA with OP.

The aim of this study is to determine the constitutional features of joint lesions in women with co-morbidity of OA with OP.

## Material and Methods

207 patients were examined in the Regional Center of Prevention and Treatment of Osteoporosis in Krasnoyarsk. OA was diagnosed in 122 women (mean age  $62.7 \pm 7.7$  years) and co-morbidity of OA with OP in 85 patients (mean age  $61.2 \pm 7.4$  years). Anthropometric, somatometric, clinical, X-ray examination, densitometry (DXA) studies were conducted.

All the data was processed employing the variation statistics methods using the software «SOMA» and SPSS 19.0. The mean (M) and standard deviations ( $\sigma$ ) were deduced. The significance of the differences in the symptom groups was assessed using Pearson's  $\chi^2$  test with continuity correction. The difference was considered reliable when  $p < 0.05$ .

## Results and discussion

When women with OA and OP co-morbidity were compared with women with only OA, the lesions of the hip and first metatarsophalangeal joints were more significantly notable and defects of the knee joints least noticeable (Table 1). Women with both OA and OP co-morbidity exhibited a

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combined defect, most often of the knee and hip joints, while occasionally defects in the knee joints and small joints of the hands too were often identified. A combined defect of the knee and small joints of hands/feet, isolated osteoarthritis of the hip joints were less frequently diagnosed.

We found that women with OA and OP more frequently revealed the mesosome (55.3%) and megalosome (43.5%) constitution, but the leptosome constitution was evident in only 1.2% of patients.

Analysis of the structure of joint defect in women with both OA and OP co-morbidity, depending on the constitution, revealed the combined defect of the knee joints with the interphalangeal joints of the hands, knee joints with joints; however, isolated defects of the knee joints were diagnosed significantly more often in women with the mesosome constitution, while the combined defect of the knee and hip joints was diagnosed significantly more often in women with the megalosome constitution (Table 2).

The severity of OA was evaluated by the algae-functional Lequesne index, which includes the parameters that characterize the pain, the maximum possible movement up to a certain distance and the daily motor activity of the patient. It was revealed that the number of women with the mesosome constitution and with greatly pronounced dysfunction of the hip joints was significantly higher when compared with women with the megalosome constitution (18.2% and 12.2%,  $p < 0.001$ ), which indicates a more severe

course of osteoarthritis in the representatives with the mesosome constitution.

## Conclusion

The combined defects in the knee and hip joints, as well as in the knee joints and small joints of hands occur most commonly in women with OA and OP co-morbidity. Depending on the constitution of the women and the OA and OP co-morbidity, various joints defects could be detected. In patients with the mesosome constitution, the combined defect of the knee joints with the small joints of the hands, knee joints with MTP, as well as isolated OA of knee joints were identified significantly more often; in patients with the megalosome constitution, the combined defect of the knee and hip joints was seen to predominate.

The Lequesne index showed that women with the mesosome constitution have significantly expressed hip joint defects, which were detected significantly more frequently when compared with patients with the megalosome constitution.

## References

1. Alekseeva LI, Zaitseva EM. Osteoarthritis and

**Table 1**

Frequency of the joint lesions in women with OA and OP co-morbidity

Localization of OA	OA and OP (n=85)		OA (n=122)		p*
	absolute value	percentages (%)	absolute value	percentages (%)	
Knee joints	75	88±3.9	115	94±2.2	0.01
Hip joints	37	43.5±3.5	9	7.4±2.4	0.001
Small joints of the hands	38	44.7±4.5	42	34±4.3	-
1 <sup>st</sup> MTP	22	25.8±4.0	53	43±4.5	0.001

Note: \* - significance of differences was assessed using Pearson's  $\chi^2$  test with continuity correction.

**Table 2**

Joint lesions in women with OA and OP co-morbidity depending on the constitution.

Group of joints	mesosome constitution (n=44)		megalosome constitution (n=41)		p*
	absolute value	percentages (%)	absolute value	percentages (%)	
knee+hip joints	10	22.7±3.8	17	41.5±4.5	0.001
knee+small joints of the hands	15	34.1±4.3	7	17.1±6.2	0.001
knee joints+1 <sup>st</sup> MTP	4	9.1±2.6	2	4.9±2.9	0.001
knee joints	4	9.1±2.6	-	-	-
knee+small joints of the hands+MTPJs	7	15.9±3.3	9	22±7.8	-
hip joints	4	9.1±2.6	6	14.6±6.0	-

Note: \* - significance of differences was assessed using Pearson's  $\chi^2$  test with continuity correction.

- osteoporosis: a coincidence or fortuity? *Consilium Medicum* 2011; 2(3): 212-215. [in Russian]
2. Karvonen RL, Miller PR, Nelson DA et al. Periarticular osteoporosis in osteoarthritis of the knee. *J Rheumatol* 1998; 25: 2187-2194.
  3. Pogrud H, Rutenberg M, et al. Osteoarthritis of the hip joint and osteoporosis. *Clin Orthop Res* 2008; 164: 130-135.
  4. Kovalenko VN, Bortkevich OP. Osteoarthritis. Practical Guide. Kiev: Morion, 2008. [in Russian].