Assessment of knowledge about prophylaxis and treatment of osteoporosis among women

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Abstract

Introduction. Osteoporosis is rated among social diseases due to its extent and consequences and is the third leading cause of death, following heart diseases and neoplasms [1]. The findings of the European Vertebral Osteoporosis Study have revealed that the prevalence of osteoporosis in Poland is 20.5% and 13% in women and men, respectively. According to the Polish data, in the population over 50 years of age, osteoporosis affects 2.8 million individuals and another 3-5 million are at a higher risk of fractures resulting from decalcification of bones [2]. According to the epidemiological data, the issue of osteoporosis is of growing importance due to the prolongation of lifespan and increased numbers of the elderly. The aim of the present study was to assess the level of knowledge about prophylaxis and treatment of osteoporosis among women.

Material and methods. The study was performed among 100 patients of the Independent Public Healthcare Medical Centre in Ostrów Mazowiecka between June and August 2016. The research was carried out with a diagnostic survey method using an anonymous questionnaire consisting of 24 open and closed questions. The results were statistically analysed and presented in tables and figures. The chi-square ($\chi2$) test and the Pearson`s correlation coefficient were applied.

Results. In the study population, 28% of women stated they definitely had knowledge about osteoporosis, 56% - rather had, 9% rather had no such knowledge, and 7% definitely had no such knowledge. The best known factors of osteoporosis reported by women included genetic predisposition (60% of respondents), sedentary lifestyle (lack of physical activity (58%), use of substances (50%), premature menopause (36%), low bone mass (33% of respondents). The best known preventive measures were to minimise the effects of all factors leading to osteoporosis (86%), diets rich in calcium and vitamin D (70%) as well as physical activity (59%).

Conclusions

1. Women have basic knowledge of osteoporosis.
2. Women know what osteoporosis is and are familiar with its causes.
3. Women know and define the basic rules of osteoporosis prevention.
4. Women know and use drug therapies and supplementations reducing the risk of osteoporosis.

Key words: osteoporosis, treatment, prophylaxis

Introduction

According to the World Health Organization, osteoporosis is a generalised skeletal disease characterised by low bone mass and impaired microstructure of bones, which result in their weakening and increased susceptibility to fractures; moreover, the diagnosis of osteoporosis is based on quantitative densitometric evaluation

of bone mineral density [3]. Type I osteoporosis (postmenopausal) develops between 51-75 years of age and its incidence is six times higher in women than in men. The lesions regard mainly the trabecular bone and therefore result in compression spine fractures and forearm fractures (Colles type). Type II osteoporosis (senile) is caused by bone loss associated with ageing; it occurs in individuals >79 years of age and its incidence is twice as common in women compared to men. In the latter, reduced density concerns both the cortical and trabecular bone, leading to spinal vertebra and femoral fractures [4]. A common mistake of patients diagnosed with osteoporosis is a decrease in physical activity due to the fear of fractures, which is likely to lead to severe health consequences. Prevention of osteoporosis and its appropriate treatment are essential [5]. In cases of osteoporosis caused by immobilisation, physical exercises slow down the rate of bone mass loss and significantly accelerate its regeneration. In cases of osteoporosis of another aetiology, increased physical activity is also of great importance yet its effects are not excellent as in immobilisation-related osteoporosis. Mechanical loading prevents the resorption of bones and stimulates their in vivo formation [1].

Material and methods

The study was carried out among 100 patients of the Independent Public Healthcare Medical Centre in Ostrów Mazowiecka. The study population included 42% of women aged 51-60 years, 40% aged 41-50 years, 10% aged 61-70 and 8 % of the youngest patients aged 30-40 years. The vast majority of patients were from towns (73%) and only 27% from villages. A diagnostic survey was carried out using the author`s questionnaire consisting of 24 open and closed questions. The results were statistically analysed and presented in tables and figures. The chi-square test and the Pearson`s correlation coefficient were applied.

Results

Table 1. Level of knowledge about osteoporosis

Score	Possible answers	Do you have the basic knowledge regarding osteoporosis	
3	Definitely yes	28	28%
2	Rather yes	56	56%
1	Rather no	9	9%
0	Definitely no	7	7%
	Total:	100	100%
	Mean:	$\overline{x} =2.05$	
	Standard variation	SD=0.81	

The mean of answers about the knowledge of osteoporosis ($\overline{x} =2.05$) demonstrates that "rather yes" was the chosen answer, which implicates that the subjects positively assess their osteoporosis-associated knowledge. To evaluate whether the study patients have the basic knowledge about osteoporosis, the detailed questions were analysed, i.e. those about diagnostic methods and factors affecting the development of osteoporosis and its advanced symptoms. The experimental chi-square value was calculated with the Yates` correction used when the expected frequencies are small (some of them smaller than 10) and was found to be $\chi 2 \ exp = 832.2$. The critical value at max. 0.5% error is $\chi 2 _{0.5\%, \ 56} = 85.75$. Since the chi-square value is higher than the critical value, the main hypothesis assuming that women have the basic knowledge about osteoporosis is statistically correct to an accuracy of maximum error of 0.5%. The Pearson`s correlation coefficient being rc = 0.62 means that the correlation is moderate and the relationship is statistically significant.
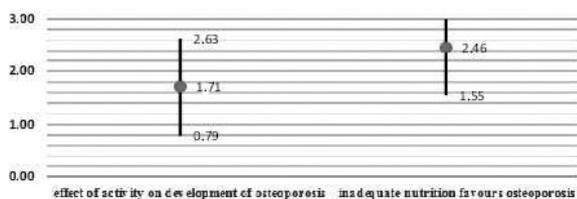
Fig.1. Effect of physical activity and inadequate nutrition on the development of osteoporosis (opinions of respondents

The mean value of answers regarding the effect of physical activity on the development of osteoporosis was 1.71, which points to the answer "rather yes". The mean value of answers about the effect of inadequate nutrition was 2.46, which points to the answer in between "definitely yes" and "rather yes". The experimental chi-square value calculated with the Yates correction used when the expected frequencies are small (one of them was 0) was $\chi 2\ exp = 14.197$. The critical value at maximum 0.5% error is $\chi 2_{0.5\%, 3} = 12.838$. Since the chi-square value resulting from the study is higher than the critical value, the detailed hypothesis which assumes that the respondents know about prevention of osteoporosis (calcium-rich diet and physical activity) is statistically correct to the accuracy of maximum error of 0.5%. The Pearson`s correlation coefficient, which is rc=0.26, demonstrates that the correlation is low while the relationship statistically distinct albeit small.
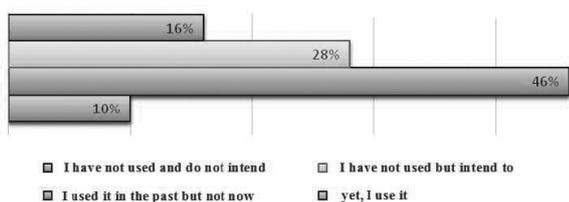

Fig.2. Analysis of the use of hormone replacement therapy (opinions of respondents)

The experimental value $\chi 2\ exp$ was 35.16, which was calculated with the Yates correction used when the expected frequencies are small (<10). The critical value at maximum 0.5% error is $\chi 2_{0.5\%, 3} = 12.838$. Since the chi-square value resulting from the study is higher than the critical value, the hypothesis which assumes that the respondents know and use drug therapies as a factor reducing the risk of osteoporosis is statistically correct to the accuracy of maximum 0.5% error. The Pearson`s correlation coefficient rc = 0.39 reveals that the correlation is low while the relationship is statistically distinct albeit small.

Discussion

Osteoporosis is a common disease, which can be qualitatively classified as small bone mass and impaired microarchitecture of the bony tissue, which increases the brittleness of bones and hence the risk of fractures. The bone mass loss accompanies the process of ageing. With the increasing lifespan, the issue becomes serious both for patients and healthcare services. According to A. Rachkiewicz, individuals > 65 years of age constitute 20 % of the population in developed countries and this percentage constantly grows. [6]. It is estimated that about 3.3 million people are affected by osteoporosis in Poland; during the last decade the incidence doubled. The preventive measures should already be implemented in children and teenagers. According to Wieczorek-Chelmińska, physical activity and balanced diets with suitable amounts of minerals, vitamins and calcium are essential for prevention [7]. At present, the most useful and best indicator of an individual risk of bone fractures is bone densitometry, also called dual-energy X ray absorptiometry (DEXA), which is considered the gold standard for diagnosis of osteoporosis [8,9]. The study by Szczygielska-Majewska et al. carried out in the population of 120 individuals have revealed that only a low proportion of respondents were able to list the risk factors of osteoporosis [10].

Conclusions

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2. Women know what osteoporosis is and are familiar with its causes.
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