THE CLINIC-STATISTIC STUDY OF OSTEOPOROSIS

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Abstract. Osteoporosis is the most common metabolic bone disease and is characterized by the shrinkage in bone mass and the distruction of bone quality, thus conferring a higher risk for fractures and injuries. Osteoporosis reaches clinical attention when it is severe enough to induce microfractures and the collapsing of vertebral bodies manifesting with back aches or predisposition to other bone fractures.

The aim of the study was to establish a statistic-numeric report between women and men in subjects diagnosed with osteoporosis through DEXA that present with a clinical simptomatology. We studied a group of subjects of masculine and feminine genders that have been diagnosed with osteoporosis through DEXA at the EURORAD clinic in Oradea from 01.01.2007-to present time .The result of the study was that the simptomatology of osteoporosis with pain and even cases of fractures is more obvious in female subjects then in male patients; statistically ,a woman/man report of 6.1/1 was established.

Keywords: osteoporosis, back aches, microfractures, frequency, bone mass.

INTRODUCTION

Osteoporosis is the most wide-spread metabolic bone disease and is characterized by low bone resistance caused by the shrinkage in bone mass and the compromisation of bone quality, thus conferring a higher risk for fractures [2]. The World Health Organization regards osteoporosis to be one of the major diseases of the modern era. The same organization appreciates that in the next 20 years, the number of osteoporosis cases will double and that osteoporosis represents an important and growing cost to the community [1]. Osteoporosis is the most important cause of fractures in the older sector of the population, the fractures caused by osteoporosis affecting mostly the hip, vertebrae and forearm. Osteoporosis, best defined as “too little bone”, reaches clinical attention when it is severe enough to produce micro fractures and the collapsing of vertebral bodies resulting in back aches or predisposition to fractures of other bones [5]. DEXA (dual energy x-ray absorption) is considered to be the standard in diagnosing osteoporosis [3]. The method allows the measurement of the mineral density of bones in the entire body, but frequently it is a determinant at the level of the lombar column and bilateral hips. Using DEXA, the mineral density of bones expressed in g/cm² (BMD) and the mineral content of the bone expressed in grams (BMC), are measured. The results obtained after scanning give us the possibility to analyze bone areas from a bone density point of view. The data that is obtained is correlated with the medium value of mineral bone density in a young adult (20-39 years) and the DMO average of the patient’s age. The diagnosis of osteoporosis is made from the BMD (DMO) measurement classification, based on the fracture risk [4].

- Normal DMO: T score between +2.5 and -1
- Osteopenia: T score between -1 and -2.5
- Osteoporosis: T score lower or equal to -2.5
- Severe osteoporosis: T score lower or equal to -2.5 with a fragility fracture

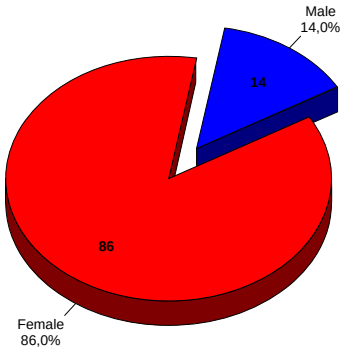
The aim of this study is to determine a statistic-numeric report between subjects of female gender and subjects of male gender diagnosed with osteoporosis through DEXA that present with a clinical simptomatology.

MATHERIALS AND METHODS

A group of 100 subjects diagnosed with osteoporosis through DEXA at the EURORAD clinic in Oradea were involved in this study. These people were hospitalized at the Rehabilitation Hospital in Băile Felix. The study refers only to subjects with a present clinical simptomatology, meaning pain of variable types like back-aches, fragility fractures or deformities of the bone shape that result from fractures or alterations of weakened bones.

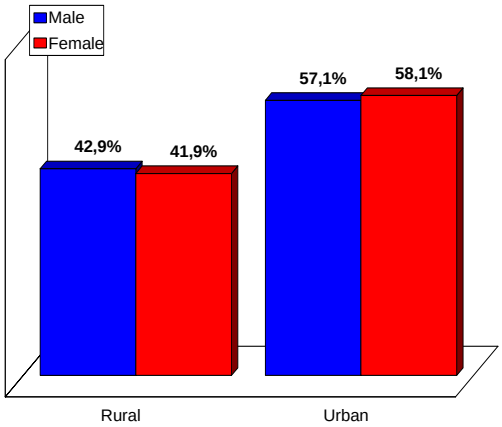
RESULTS AND DISCUSSIONS

The distribution of cases based on sex shows a net preponderance of the female gender (86% versus 14%), like in graph 1. In our study lot, the female/male report was 6.1/1. ($p<0.001$)



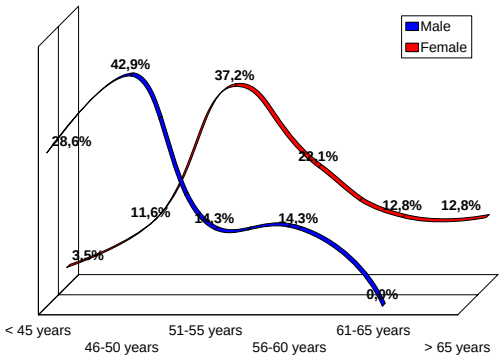
Graph 1

The distribution of subjects based on where they come from – see graph 2 - points out a predominance of people in urban locations ($p<0.05$), rather than rural ones, both in men and women. The difference is not significant, as for the patients living in a rural location we must take into consideration the lower doctor addressability rate.



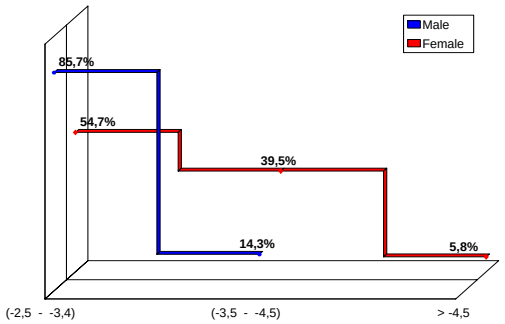
Graph 2

Analyzing the distribution of cases based on age groups in graph 3, we can observe a prevalence peak in subjects of male gender around the age of 46-50, while in subjects of female gender the peak being recorded between the ages of 51-55. This is explicable by the apparition of menopause around the age of 50. ($p<0.02$) In male subjects we must take into consideration that half of them aged fewer than 50 and suffer from neurological deficiencies, being impaired in wheelchair.



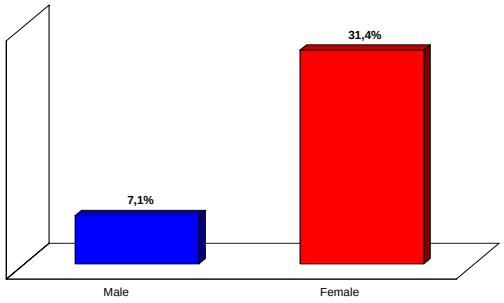
Graph 3

Analyzing the T score obtained at DEXA in the graph 4, we can observe that in female subjects a T score of over -3.5 was obtained in a percentage almost 3 times bigger then in male subjects. ($p<0.001$).



Graph 4

We have noticed in the graph 5 that the fragility fractures are present at over 31.4% of the women, whilst only 7.1% of men present with such fractures. ($p<0.001$).



Graph 5

CONCLUSIONS

The result of the study was that the simptomatology of osteoporosis, along with pain and even cases of fragility fractures is more evident and frequent in female subjects then in male subjects. Furthermore the study showed that the osteoporosis is emphasized in the early postmenopausal period.

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