

CPC-036 Connection between bone fractures, vitamin D level and low-energy falls in hospitalized elderly patients

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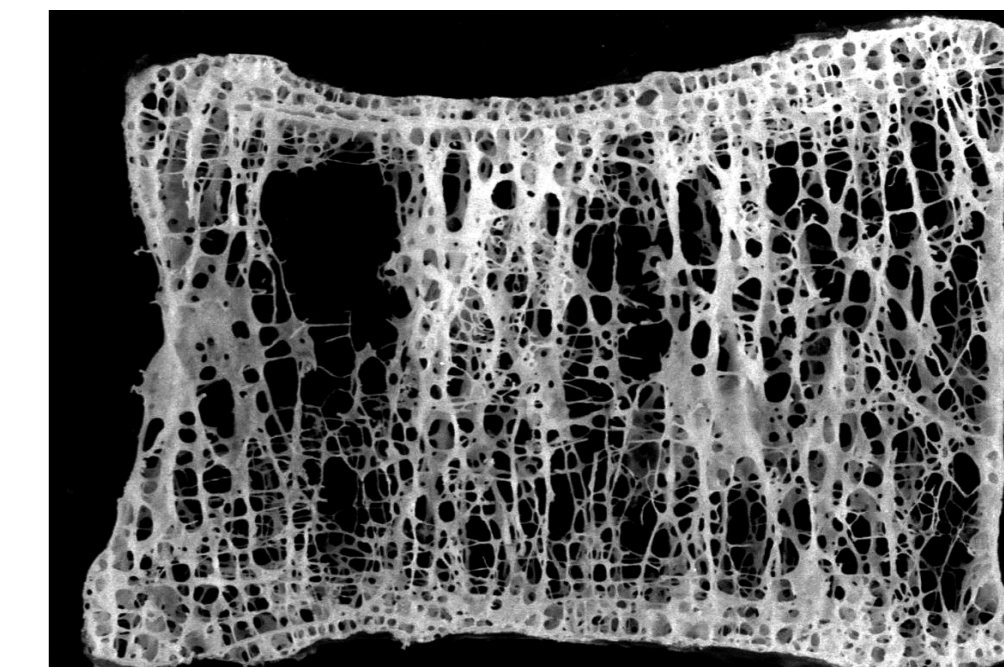
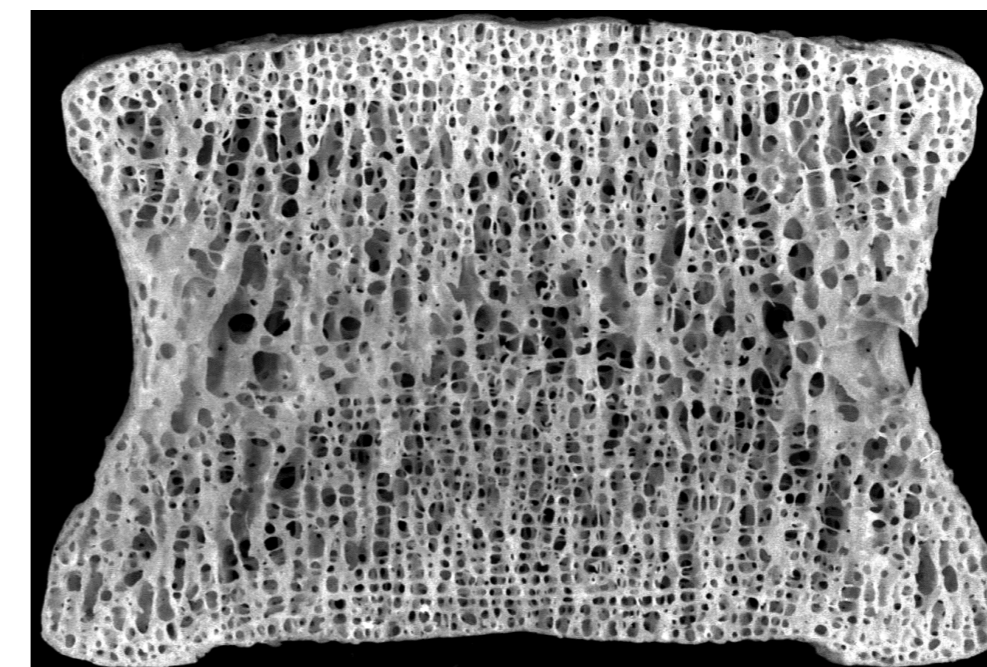
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Background

The aging of the population in developed countries is a growing problem today. Prevalence of chronic diseases, such as osteoporosis, increases with age. It is estimated that **900,000 people** (9% of the population) aged >50 **suffer from osteoporosis in Hungary**. This condition highly increases the risk of fractures of vertebra and hip-bone, which often lead to fatal consequences. Many studies have proven that a low vitamin D level increases the risk of bone fractures. Adequate vitamin D level is essential to prevent bone loss and structural damage of the bone matrix, which also prevents fractures.

Objective

To compare vitamin D levels of hospitalized hip fractured patients with hospitalized non-fractured patients, as well as to detect the prevalence of low-energy falls, and to analyze the differences between the groups.

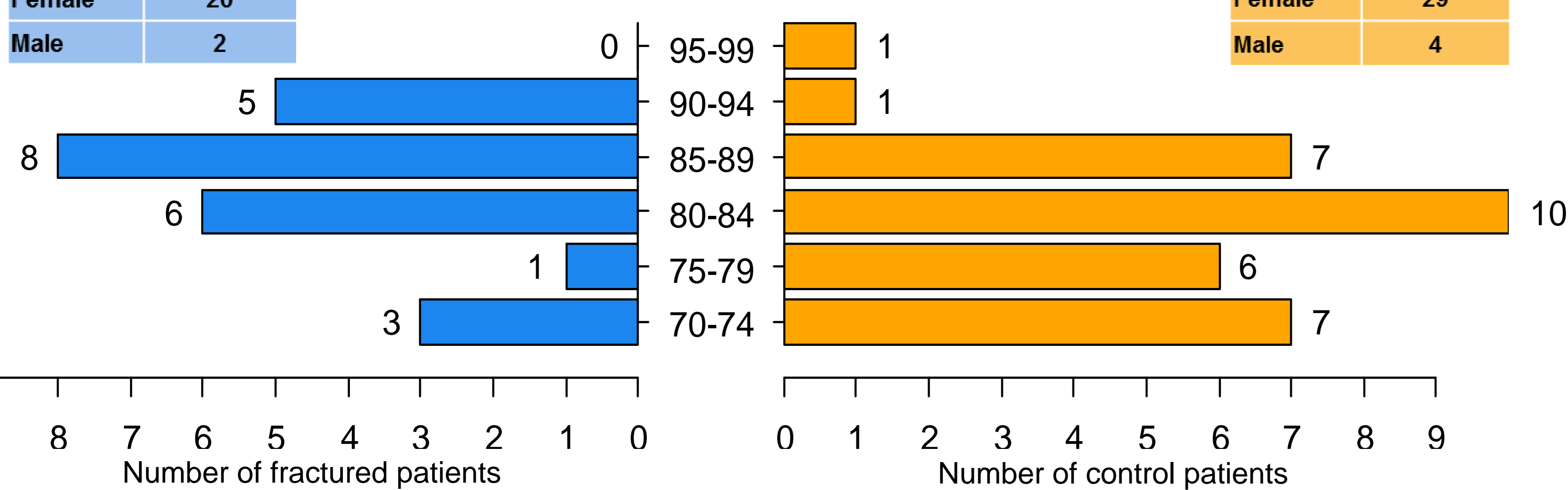


Demographic features of the studied patient groups

Fractured group	
Number of patients	22
Mean age (years)	84.09
Standard deviation (SD)	± 6.78
Female	20
Male	2

Control group	
Number of patients	33
Mean age (years)	80,52
Standard deviation (SD)	± 6,56
Female	29
Male	4

Age (years)



Materials & Methods

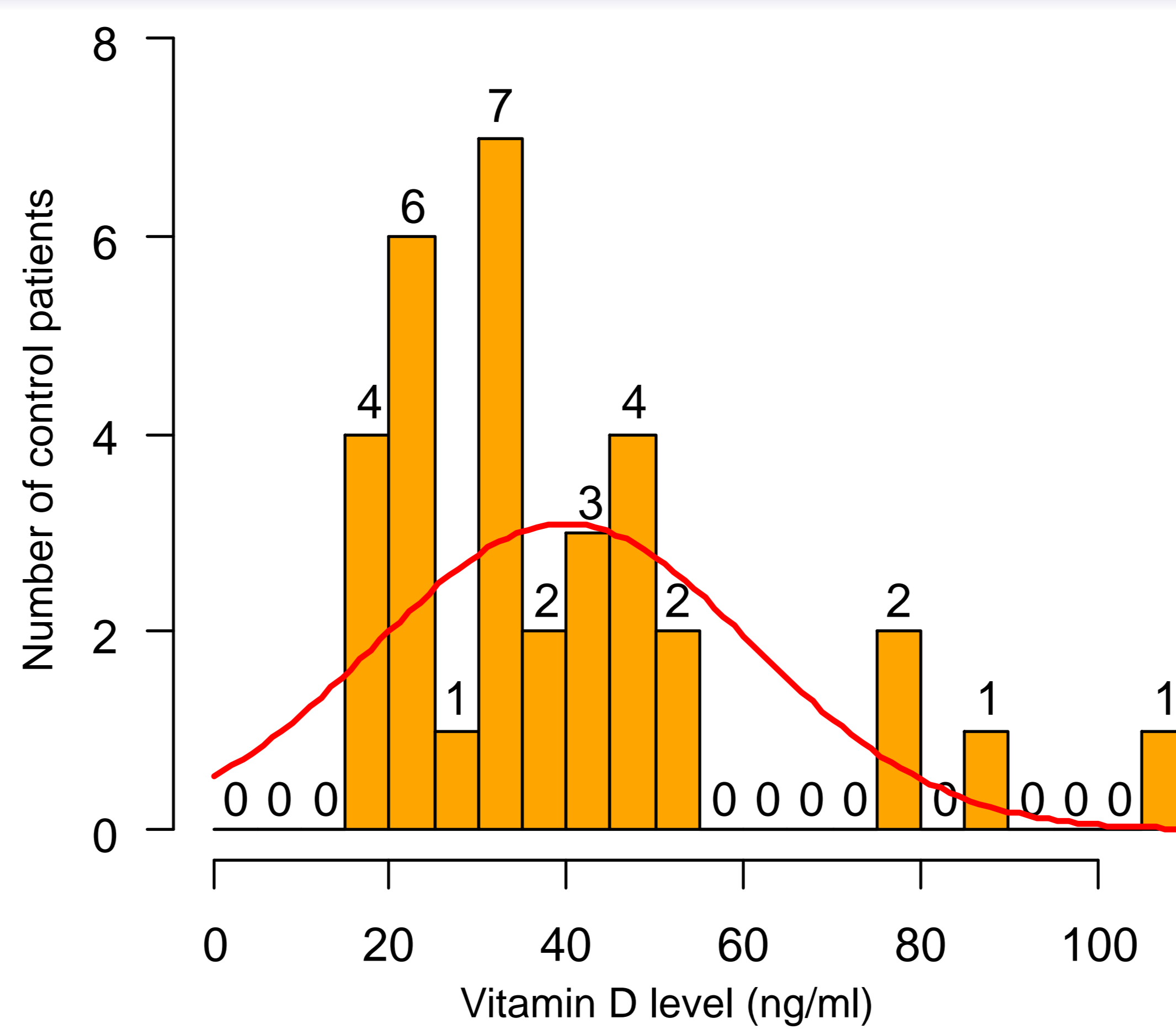
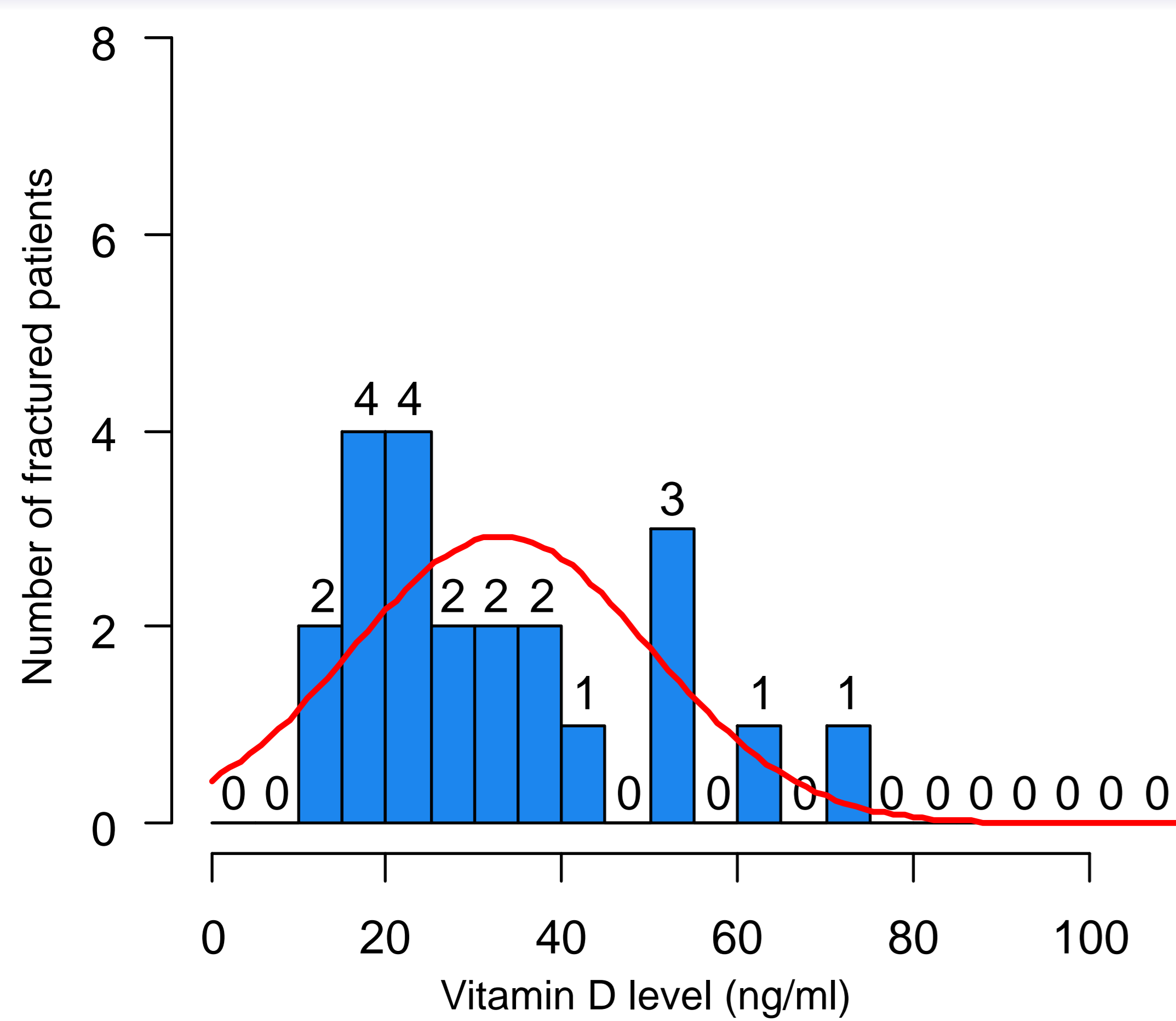
The **fractured group** was recruited from the **Traumatology Department** and the **control group** was recruited from the **Department of Internal Medicine and Geriatrics**. The recruitment period was from 2011 June to 2011 September.

Control group was matched according to age and gender. Vitamin D levels were measured with ELISA kit and were expressed in ng/ml. Subjects were asked about previous falls during a personal interview.

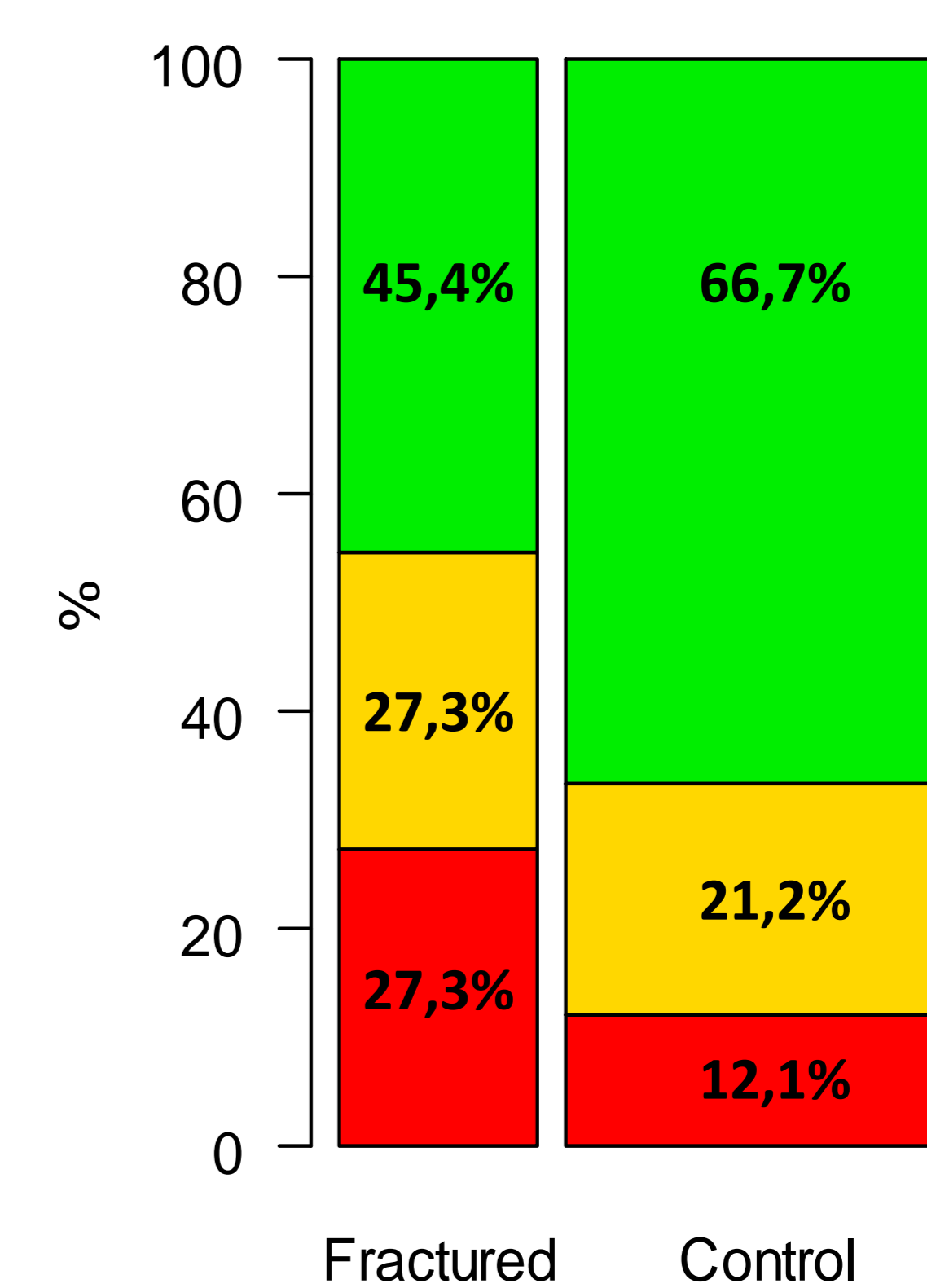
Results I.

Twenty-two patients were in the fractured group (mean age 84.09 years, SD ± 6.78) and **33** patients were in the control group (mean age 80.52 years, SD ± 6.56). The majority of patients were women in both groups.

Vitamin D levels



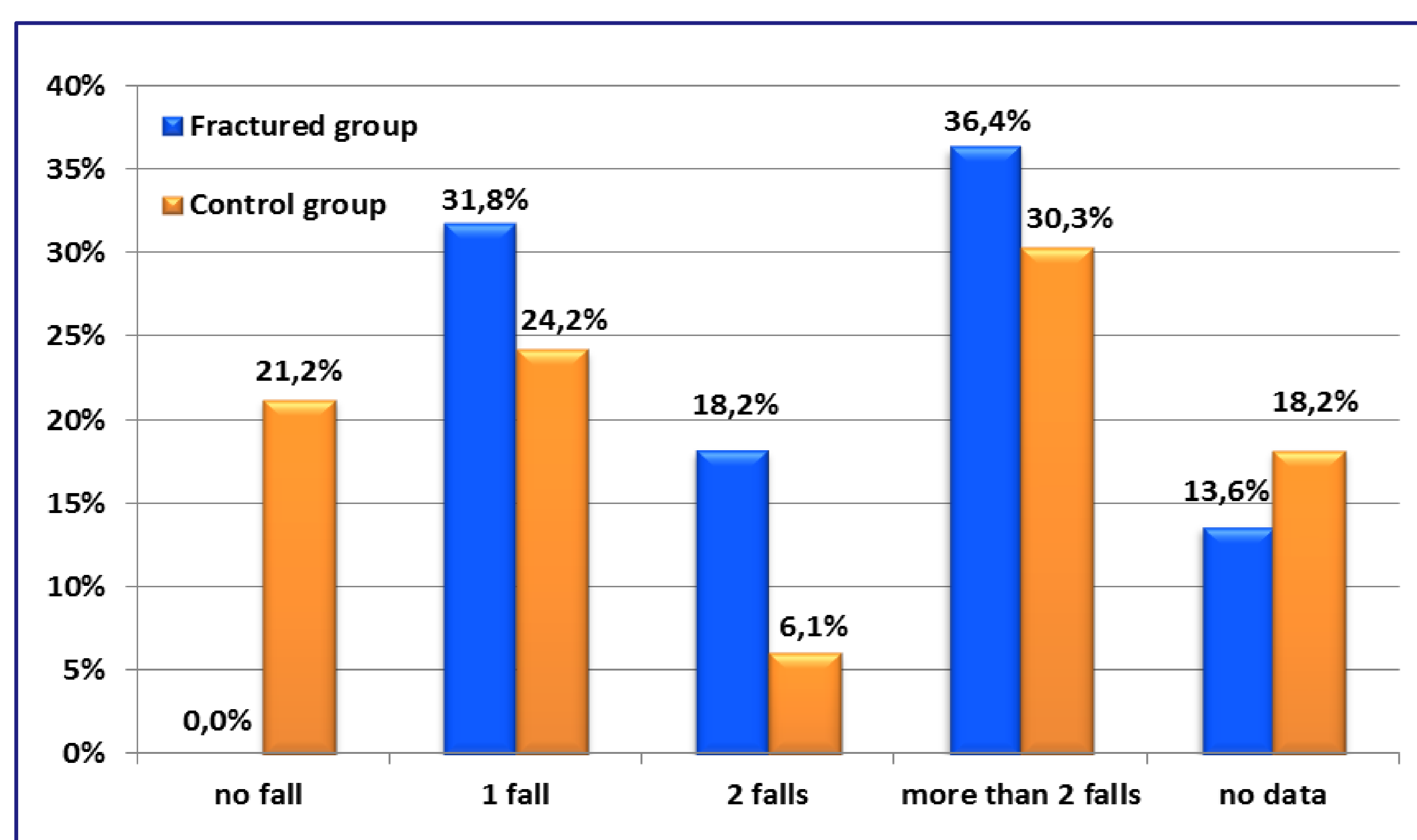
Laboratory references of 25-OH-D ₃ vitamin	
> 30 ng/ml	Sufficiency (adequately supplied)
< 30 ng/ml	Insufficiency (deficient)
< 20 ng/ml	Deficiency (seriously deficient)



Results II.

The mean vitamin D level was **33.13 ng/ml** in the fractured group and **39.7 ng/ml** in the control group (p=0.230). Vitamin D insufficiency (20-30 ng/ml) was higher in the control group (**27,3%** vs. **21,2%**), as well as the prevalence of deficiency (<20 ng/ml) (**27,3%** vs. **12,1%**).

Prevalence of falls within one year



Results III.

Patients of the fractured group reported considerably more falls within one year than the control group. An important finding is that about **36,4%** of fractured patients, and **30,3%** of control patients reported more than 2 falls in the previous year.

Conclusion

Despite vitamin D levels were measured during summer time, the insufficiency was markedly presented in both patient groups.

Since the difference in vitamin D levels was not significant between the investigated groups, other risk factors could be responsible for fractures besides low vitamin D level. A remarkable factor may be falls, because more than half of the fractured patients reported multiple falls in the previous year. Impaired physical functions and polypharmacy are possible underlying factors.