VDR gene polymorphisms in Alzheimer's disease – pilot study.

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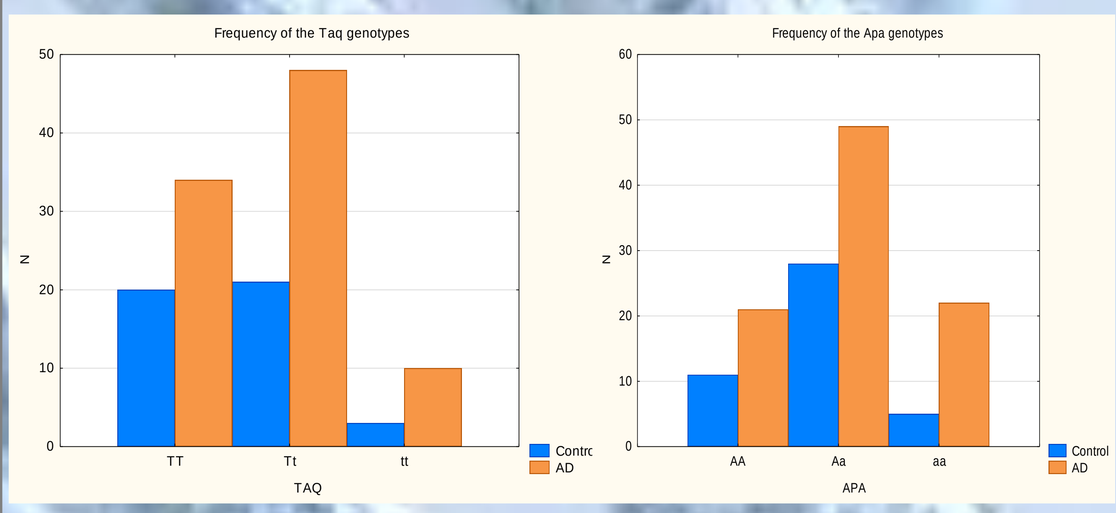
Introduction

Aggravation of the symptoms of Alzheimer's disease may also underlie the functioning of receptors associated with calcium and vitamin D. Therefore, it seems reasonable to study the correlation of polymorphisms of vitamin D receptor (VDR) and calcium receptor (CASR) with symptoms of AD. Alzheimer's disease, vitamin D deficiency and osteoporosis often coexist in the patient. Research suggests that vitamin D deficiency is much more frequent in the patients with AD. Expression of VDR gene occurs in a neuronal and a glial cells. VDR belongs to the nuclear receptor superfamily and acts as a ligand activated transcription factor.

Metrial and methods

During the project it was selected a 40 patients and a group of 40 healthy volunteers. There are many polymorphisms in the VDR gene. In the present work we focused on assessing the prevalence of four of them relating to the regulation of expression of this gene: TaqI, ApaI, FokI and BsmI.

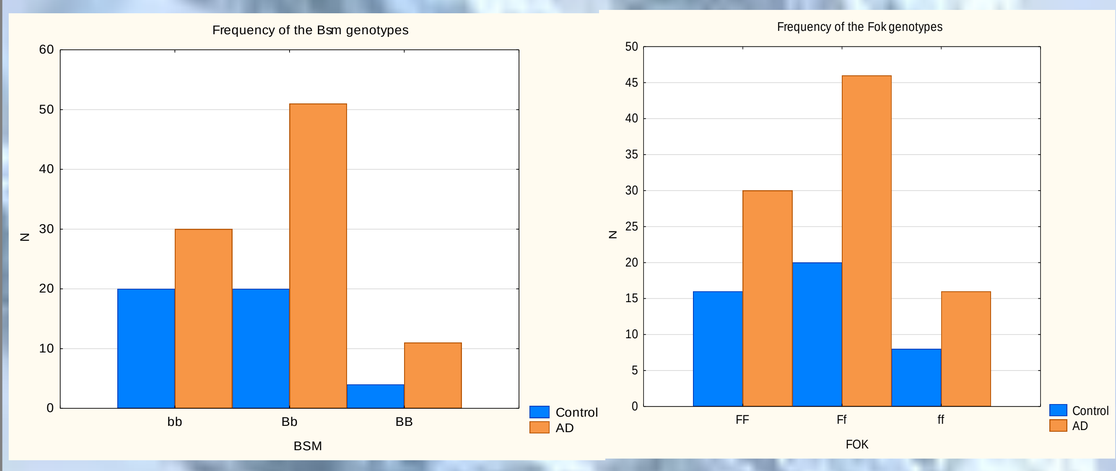
Genomic DNA was isolated from peripheral blood. Minisequencing technique was used to identify VDR polymorphisms (TaqI, ApaI, FokI and BsmI).

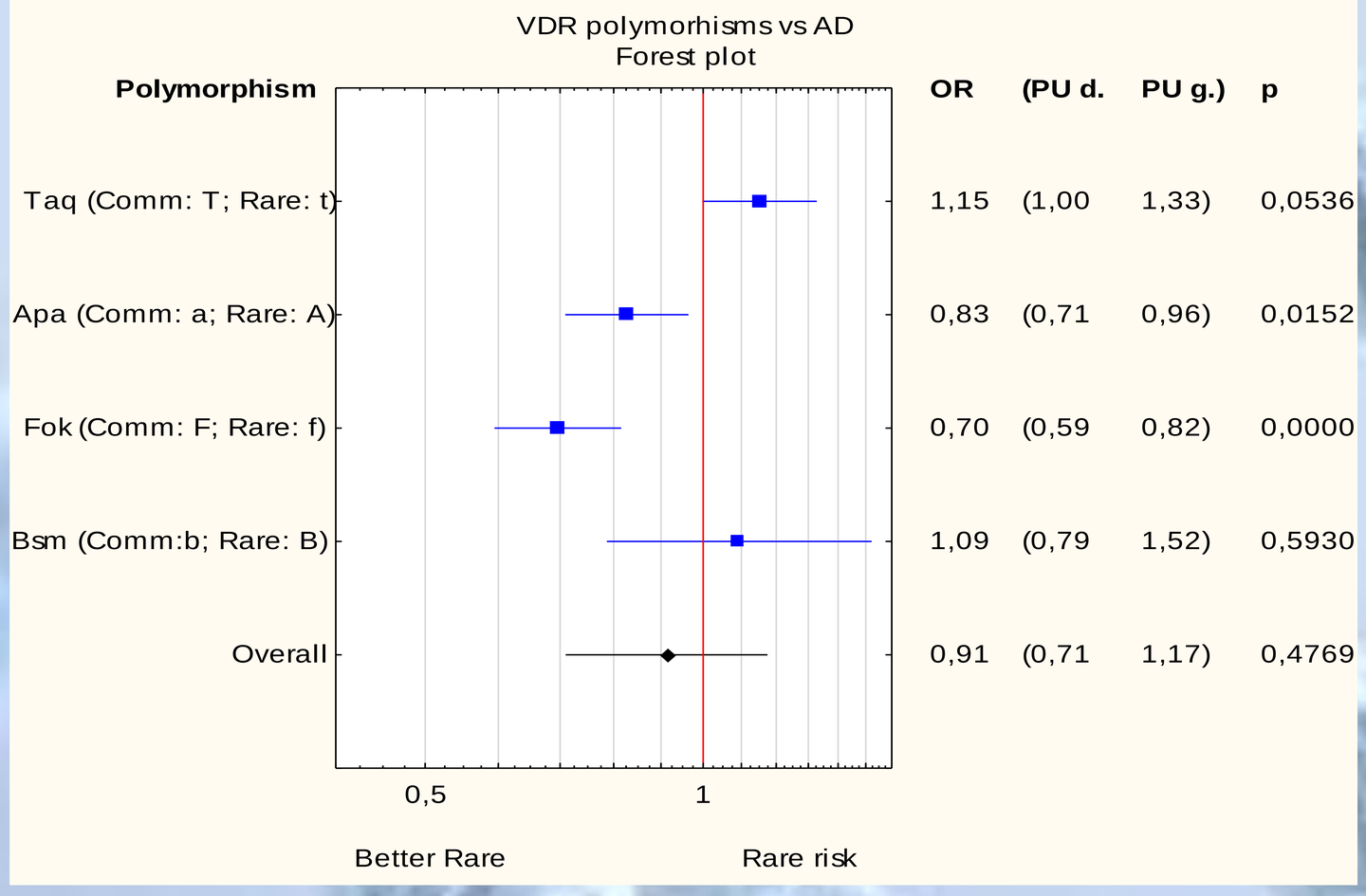


Results

Distribution of all polymorphisms were obtained according to Hardy-Weinberg low (ApaI: chi^2=2.54, p=0.1111, TaqI: chi^2=1.21, p=0.2412, BsmI: chi^2=0.57, p=0.4490, FokI: chi^2=1.23, p=0.0.2680).

We didn’t observe any significant differences in the distribution of individual genotypes of the VDR polymorphisms in patients with Alzheimer's disease compared to control group. We observed tendency with distribution common and rare genotypes in AD.





Conclusion

- distribution of genotypes is agreed with H-W law;
- there is no significant differrences in the distribution of individual genotypes in AD patients versus control group;
- rare allels of the Taq and Bsm polymorphisms often occur in AD;
- common allels of the Apa and Fok polymorphisms are connected with AD;
- haplotype: BAt are more connected with AD.

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