

The ageing of population leads to increase prevalence of dementias that are becoming a serious socio economic problem. Early initiation of treatment resulting from early diagnosis may delay the loss of self-sufficiency. These cause a growing effort for finding an early marker of these diseases that allows making diagnosis before developing dementia. The attention is focused mainly to Alzheimer's disease (AD) that represents the most common type of dementia and is the most affected by currently available drugs. The aim is to enable to diagnose AD already at the stage of Mild Cognitive Impairment (MCI) that represents a transitional stage between normal aging and dementia.

The olfactory impairment was considered to be a possible marker of AD as there is evidence that it occurs in very early stages of AD and its severity correlates with the disease progression. On the other hand, very poor data are available on olfactory functioning in other types of dementias. The neurodegenerative process starting in mesial temporal structures also suggests that AD patients may have an early spatial navigation impairment (especially in allocentric navigation) as well as facial emotion recognition impairment as the mesial temporal structures are crucial for these functions. These topics are presented in the submitted thesis.