

STRUCTURAL BRAIN CHANGES ASSOCIATED WITH DEPRESSIVE SYMPTOMS IN ELDERLY WITH AND WITHOUT MILD COGNITIVE IMPAIRMENT

A. Lebedeva¹, E. Westman¹, A. Lebedev², A. Simmons^{3,4,5}, D. Aarsland^{1,2,6}, *The Alzheimer's Disease Neuroimaging Initiative*

¹Neurobiology, Care Science and Society, Karolinska Institutet, Stockholm, Sweden, ²Centre for Age-Related Medicine, Stavanger University Hospital, Stavanger, Norway, ³King's College London, Institute of Psychiatry, ⁴NIHR Biomedical Research Centre for Mental Health, ⁵Centre for Neurodegeneration Research, King's College London, London, UK, ⁶School of Medicine, University of Oslo, Oslo, Norway

Introduction: Depression is common in the elderly with a significant impact on the quality of life, and increased risk for developing dementia. However, the underlying structural brain changes are not well established.

Objectives: To investigate neuroanatomical correlates of depressive symptoms in elderly people with and without mild cognitive impairment (MCI).

Methods: 621 subjects with (n=395) and without (n=226) MCI selected from the Alzheimer's Disease Neuroimaging Initiative (ADNI) database were included in the study. Geriatric Depression Scale (GDS-15) with a cut-off point of 6 was used to evaluate depression. All subjects had T1 3D MRI images acquired at multiple ADNI sites using a standardized MRI protocol. Image post-processing included steps for brain segmentation and cortex reconstruction, and was performed using the software Freesurfer. General linear modeling was used to investigate depression-associated brain differences in patients with and without MCI (using age and gender as nuisance covariates).

Results: No depression-associated differences in cortical thickness were observed in subjects without MCI, whereas MCI subjects with depressive symptoms revealed significant thinning in right parahippocampal, middle temporal, left parahippocampal and entorinal gyri compared to non-depressed MCI patients.

Conclusion: We found that depressive symptoms in elderly patients with MCI are associated with more severe atrophy in medial temporal area, suggesting a possible contribution of Alzheimer's pathology in the pathogenesis of depression in this group.