Introduction. Patients with Alzheimer’s Disease (AD) and Mild Cognitive Impairment (MCI) may present lack of awareness of their cognitive deficits, a symptom known as "Anosognosia". It can be measured in different ways, i.e. by the examiner clinical judgments, or by measuring the discrepancy between the patient's and an informant's judgment, or between the patient's judgment and their actual performance on cognitive testing. We investigated if anosognosia is associated with grey matter loss in specific brain regions in patients with MCI and AD, and tested whether different measures of anosognosia reveal similar brain correlates.

Methods. Anosognosia was evaluated in 27 patients with cognitive decline (15 MCI and 12 AD) through three different measures of awareness: clinical rating (Clinical Insight Rating Scale, CIRS), discrepancy between patient-informant judgments (Anosognosia Questionnaire Dementia, AQ-D) and discrepancy between patient's judgment and performance on cognitive testing (self-appraisal discrepancies, SAD). Patients underwent high-resolution MRI imaging. Correlational Voxel-based morphometry analyses were performed to identify associations between the above scores and regional grey matter loss.

Results. All measures of anosognosia (CIRS, AQ-D, SAD) were correlated with grey matter loss in the right hippocampus.
Conclusion. Right hippocampus emerged as a key structure in awareness mechanisms, irrespective of the assessment methods used; this is in accordance with recent findings suggesting that anosognosia is primarily caused by a decline in specific mnemonic processes leading to a loss of personal knowledge. In addition, our results suggested that “on-line monitoring” required by the self-discrepancy task was dependent on the specific neural networks elicited by the task itself, accordingly with the theory that the presence of locally and central modules may explain domain-specific unawareness.