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### PROTON SPECTROSCOPY IN MILD COGNITIVE IMPAIRMENT

**C. Montull**[1], J.M. Mercader[2], R. Blesa[3], J. Peri[4], M. Bertomeu[5]

[1]*Radiology, Hospital Municipal de Badalona-CRC,* [2]*Radiology, Hospital Clinic de Barcelona,* [3]*Neurology, H. San Pau,* [4]*Radiology, CRC-Tavern,* [5]*Radiology, CRC-Tavern/Hospital Municipal de Badalona, Barcelona, Spain*

**Objectives:** To establish whether 1H - MRS aids early diagnosis of progression to Alzheimer's disease in patients with MCI.

**Material and methods:** 21 patients with MCI underwent 1H - MRS using a 1.5 T GE scanner. The voxel of interest was located in the posterior cingulate. NAA/Cr, mI/Cr and NAA/mI were evaluated. Patients with MCI were compared with a group of 15 patients at various stages of AD and with 11 normal controls. Patients with MCI were followed up for four years, though by the fourth year the number of patients had fallen to 7. All subjects underwent a neurological exploration and the MMSE and ADAS neuropsychological tests.

**Results:** In the four-year longitudinal study, 78% of the MCI subjects progressed to AD. The 1H -MRS of these subjects differed from that of the normal controls but no significant differences appeared in the evolution. From the outset it was closer to that of the AD subjects, especially in terms of the high levels of mI/Cr. Before the clinical appearance of dementia a sudden increase in mI was observed.
MCI subjects showed an increase in mI/Cr and a fall in NAA/Cr, as well as an increase in mI/NAA ($p < 0.005$) .
AD subjects presented a significant reduction in NAA/Cr ($p < 0.05$) compared with controls. The mI/Cr and the mI/NAA presented significant increases ($p < 0.005$) in AD.

**Conclusion:** Though other studies are required, 1H -MRS appear to aid early diagnosis of AD in subjects with MCI.