

## Abstract Preview - Step 3/4

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Topic: Pathology and pathogenesis of MS - 21 Imaging

**Title:** Longitudinal study to measure iron deposit in basal ganglia and related structures in patients with clinically isolated syndrome

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**Text:** **Background and objective:** Iron accumulation within basal ganglia and related structures has been described in multiple sclerosis (MS). In early stages of the disease iron deposition may be associated with the progression of the disease. The aim of this longitudinal study is to assess the influence of iron deposit in basal ganglia and related structures in patients presenting with a clinically isolated syndrome (CIS).

**Materials and methods:** 45 patients diagnosed of CIS (27 women; median age, 34 years; EDSS range, [0, 5]) with a clinical follow-up of at least 3 years, underwent two 3.0 T brain MRI scan, baseline and 1-year follow-up, that include a T1 magnetization prepared rapid acquisition gradient echo (MPRAGE), and a dual-echo susceptibility weighted (SW) sequences. Thalamus, caudate, putamen, pallidum and accumbens area masks were obtained on MPRAGE images using FIRST tool of FSL package (FMRIB software library, Oxford) and registered to SW images. Iron deposit within these regions were obtained by R2\* maps measured on magnitude SW images for baseline and 1-year scans. The increment of iron between 1-year and baseline scans was also measured all these regions. Conversion to MS was assessed according to McDonald criteria and new relapse within three years was also studied. Statistical analysis involved U Mann-Whitney test to evaluate differences in iron measurements between groups.

**Results:** We only found significant differences for the increase of iron in thalamus region between 1-year and baseline scan when comparing the presence of a new relapse within 3 years (yes, 1. no, 0.56; p-value=0.014). With regard to the other regions, though we observed an increase of iron deposit for the group presenting a new relapse these did not show significant differences. Baseline and 1-year iron measurements did not present significant differences between those patients that converted to MS and those that did not in the first year.

**Conclusions:** The results of this longitudinal study suggest that just a reduced number of iron variables may be useful to discriminate CIS patients who fulfilled the criteria for establishing the diagnosis of MS.

**Disclosure:**

F.X. Aymerich and J. Hlinkova have nothing to disclose.

C Auger has received speaker honoraria from Biogen, Stendhal and Novartis.

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X Montalban has received speaking honoraria and travel expenses for participation in scientific meetings, has been a steering committee member of clinical trials or participated in advisory board of clinical trials in the past with Actelion, Almirall, Bayer, Biogen, Celgene, Genzyme, Hoffmann-L Roche, Novartis, Oryzon Genomics, Sanofi-Genzyme and Teva Pharmaceutical.

A Rovira serves on scientific advisory boards for Novartis, Sanofi-Genzyme, and OLEA Medical, has received speaker honoraria from Bayer, Sanofi-Genzyme, Bracco, Merck-Serono, Teva Pharmaceutical Industries Ltd, Novartis and Biogen Idec, and has research agreements with Siemens AG and Icometrix.

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Back