Isolated cognitive relapses and informant-based evaluation of neuropsychological performance in MS

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Introduction

In multiple sclerosis (MS), isolated cognitive relapses (ICR) (i.e. episodes of transient decline in cognitive performances due to an acute demyelinating event), are difficult to recognise. A possible approach to diagnose ICR could be represented by the use of informant-based questionnaires, such as the MS Neuropsychological Screening Questionnaire (MSNSQ), as they well correlate with objective cognitive performances (Benedict et al., 2003). To date, however, the ability of informant-based measures to capture isolated cognitive relapses remains unproven.

Aims of the study

The aim of this work is to retrospectively evaluate the impact of ICR on informant-based evaluations of cognitive performances in subjects with MS.

ICR diagnostic criteria

Based on our previous study (Pardini et al., 2014) we defined ICR as

(i). a transient decline in objective neuropsychological performance (at least 4 points at the Symbol Digit Modalities test).
(ii). No clinical or subjective evidence of other new neurological signs and symptoms.
(iii) Concurrent evidence of with brain disease activity defined as a positive gadolinium enhancing scan (Gd+).

Enrollment criteria

All relapsing remitting (RRMS) subjects included in this retrospective study fulfilled the following criteria
(i) EDSS < 6.0
(ii) A brain MRI scan positive for a gadolinium enhancing lesion (gad+ MRI scan)
(iii) No changes in EDSS within 12 months prior to the gad+ MRI scan.
(iv) at least three separate evaluations with the MSNSQ, SDMT and the Hospital Anxiety and Depression Scale (HADS), one of those performed in the year preceding the gad+ MRI scan (t0), and the other two respectively in the month (t1) and the year (t2) following the gad+ MRI scan.

Results

65 RRMS subjects (age: 39.2 5.0; 40 females/25 males, median EDSS: 3.0) were included in this retrospective analysis; of these 10 fulfilled the operational criteria for isolated cognitive relapses. There was a significant increase in informant-based MSNSQ scores between t0 and t1 (p<0.001), and a significant decrease between t1 and t2 in patients with isolated cognitive relapses (p<0.001). There was no significant change in informant based MSNSQ scores at t1compared to t0 or t2 in MS patients without isolated cognitive relapses. Values reported in the Figure on the left. There were no significant changes in self-report MSNSQ scores.

Take home message

In MS, ICR have an impact on informant-based scales of cognitive performance.

ICR thus are not only a para-clinical phenomenon, as could be suggested by self-report scales but instead present with an ecological impact on the daily activities of MS subjects.

Informant-based measures could represent an easy-to-use approach to the identification of ICR in clinical practice.

MSNSQ-informant
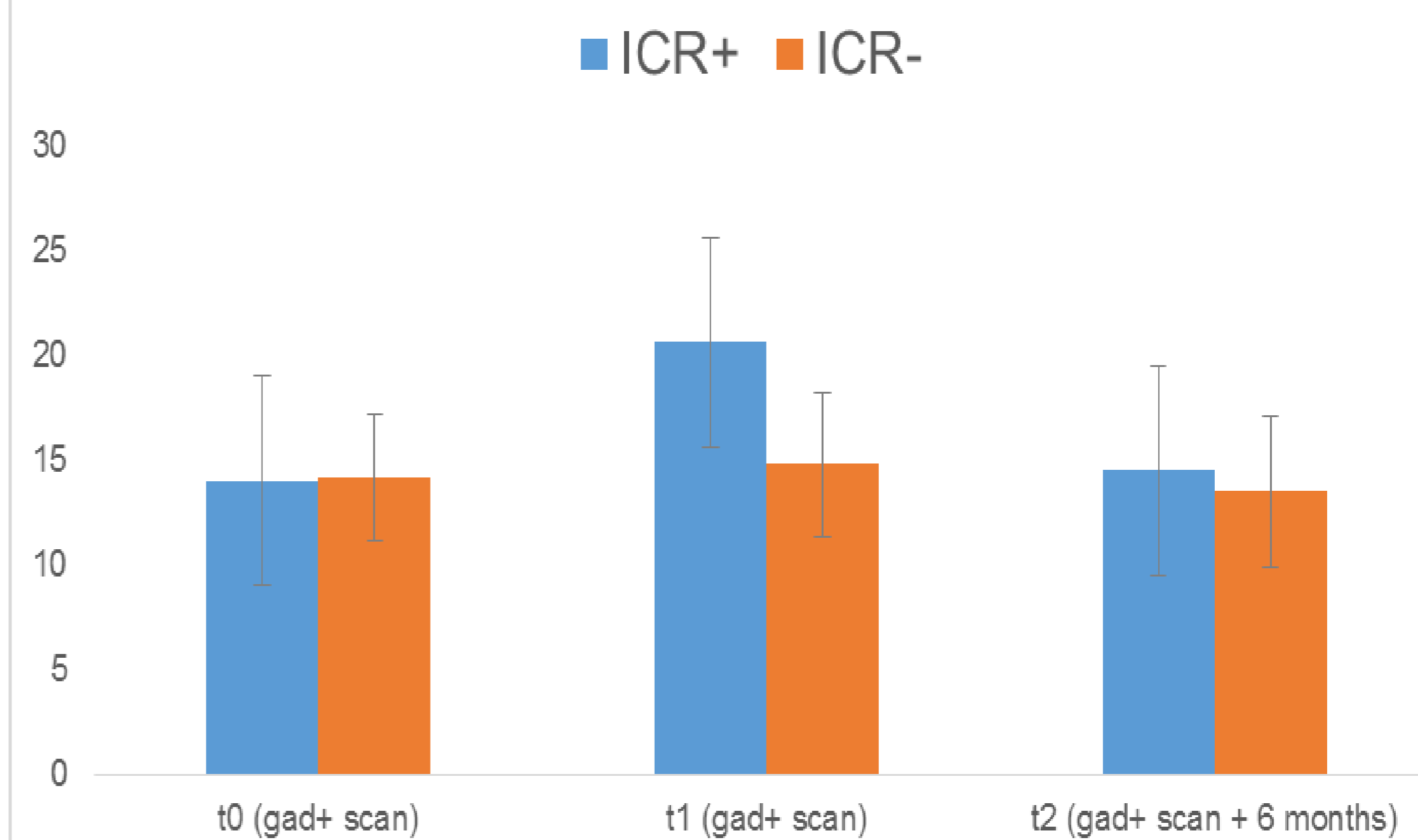
MSNSQ-self report
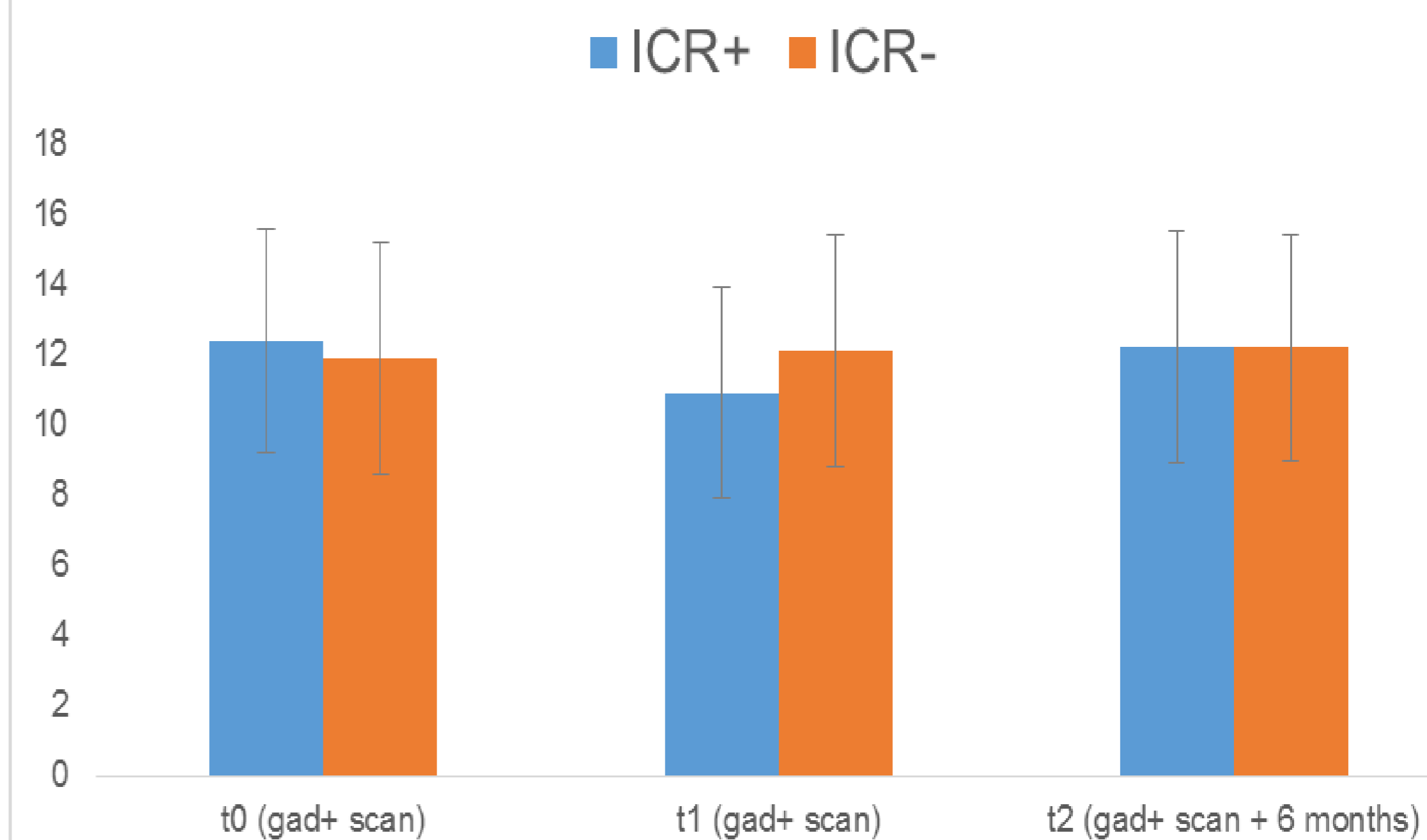
Discussion

Isolated cognitive relapses were associated with a significant change in informant-based MSNSQ scores in RRMS subjects.
Informant-based measures of cognitive performances may be useful to screen for isolated cognitive relapses in the clinical setting.

References

Pardini M et al. Isolated cognitive relapses in multiple sclerosis. JNNP. 2014 Sep;85(9)

Benedict RH et al., L. Screening for multiple sclerosis cognitive impairment using a self-administered 15-item questionnaire. Mult Scler. 2003 Feb;9(1).