Tilburg University

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Mark, R.E.

Published in:
European Journal of Neurology

DOI:
[10.1111/j.1468-1331.2012.03736.x](https://doi.org/10.1111/j.1468-1331.2012.03736.x)

Publication date:
2012

Document Version
Publisher's PDF, also known as Version of record

[Link to publication in Tilburg University Research Portal](#)

Citation for published version (APA):
Mark, R. E. (2012). Good recovery after stroke may hide widespread cognitive deficits. *European Journal of Neurology*, 19(7), e61. <https://doi.org/10.1111/j.1468-1331.2012.03736.x>

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LETTER TO THE EDITOR

Good recovery after stroke may hide widespread cognitive deficits

R. E. Mark

Department of Medical Psychology and Neuropsychology, Tilburg University, Tilburg, The Netherlands

Correspondence: R. E. Mark, Department of Medical Psychology and Neuropsychology, Tilburg University, PO Box 90153, 5000 LE Tilburg, The Netherlands (tel.: +31 (0) 13 466 2562; fax: +31 (0) 13 466 2067; email: r.e.mark@uvt.nl).

Keywords: cognitive disorders and dementia, executive functioning, magnetic resonance imaging, memory, neuropsychology, stroke

Received: 31 January 2012

Accepted: 14 February 2012

Sir,

I was very interested to read the recently published paper by Planton *et al.* [1] not least because we are also studying neuropsychological functioning in those with a 'good recovery' after stroke: in our CompAS (Complaints After Stroke) study. Planton *et al.*'s paper rightly deserved its own editorial by van Dijk and de Leeuw (same issue). It is wonderful to see neuropsychological outcome after stroke finally finding the place it deserves in the neurological literature, so much so that it even has a new name: 'post-stroke cognitive impairment' [2]. As the authors rightly point out, many stroke patients are sent home deemed to have 'good recovery' only to discover that their cognitive functioning is not working as well as it might and that these problems have a massive impact on their daily lives.

They found that survivors tested at 3 months post-stroke performed more poorly than controls on every cognitive domain tested. The main goal of their study was thus fulfilled – to assess neuropsychological outcome (in the short term) in good recoverers with a first-ever stroke. Their second goal – to identify both the profile of possible neuropsychological impairment and its relationship with brain lesions – was harder for the authors to fulfil. They had unequal subgroups that were also relatively small; no significant links were found between lesion location and cognitive impairment.

This may simply be an issue of low statistical power or not choosing the correct statistical analyses (the focus is on the group rather than on the individual level). Unfortunately, the authors also provide no data on the vascular risk factors in the control group nor did they measure MRIs in the controls making the (significant) link between increased white matter lesions and more cognitive deficits premature: they cannot rule out the possibility of such lesions in the control group caused for example by silent strokes.

The authors also found that whilst patients were more apathetic than controls, they were not more depressed. Depression is common after stroke, but perhaps the patients were not home long enough to be fully aware of their cognitive disabilities or, as the authors themselves suggested, depression after stroke is more common in those who are more disabled than their patient population. This too was reflected in the fact that the levels of subjective cognitive complaints in both patients and controls were low (as assessed by the CCQ – a French questionnaire, maximum score 10 and perhaps not sensitive enough to pick up subtle cognitive complaints?) Cognitive complaints are what we are focusing on in our CompAS study, and as such, we see these as very different to actual cognitive functioning; they are after all what patients themselves think about their cognition and do not always correlate with actual cognitive test performance [in stroke: see 3].

There are a number of issues I would like to ask the authors about: (i) Why did they use spouses or relatives of the patients as controls? (close relatives, especially spouses, do not make for good controls because they also tend to suffer from depression, lower quality of life and even cognitive dysfunction as a direct result of living with the stroke patient) [4]. Furthermore, (ii) why did the authors not use the Oxfordshire Community Stroke Project classification (OCSP) [4,5] to assess stroke type/severity? And, (iii) why do they refer to cognitive complaint, quality of life and anosognosia as 'global functioning'? Normally this is measured with something like the Barthel Index or the Modified Rankin Scale in acute stroke.

Planton *et al.* have, however, highlighted a number of important issues when assessing neuropsychological functioning after stroke in people who have

'good recovery', not least that not only executive functioning is affected but also memory and that this can be related to hippocampal diaschisis, perhaps suggesting a tentative link with more progressive dementias? They also underlined the importance of taking confounding factors (e.g. previous cognitive decline, clinical variables) into account in future prospective studies of neuropsychological functioning after stroke, something that many studies have regrettably not considered. Highlighting the need to follow-up patients who have been deemed 'recovered' is clearly necessary if we are to develop better ways to treat them. What matters to stroke patients and how they function needs to be further explored not just in the short term but also in the longer term, something that we hope to address in the CompAS study.

Acknowledgements

I would like to acknowledge my colleagues also working on the CompAS study at Tilburg University: Marielle van Rijsbergen, Paul de Kort and Margriet Sitskoorn.

Disclosure of conflict of interest

The authors declare no financial or other conflict of interests.

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