Response to Letter Regarding Article "Neurocognitive Improvement After Carotid Artery Stenting in Patients With Chronic Internal Carotid Artery Occlusion and Cerebral Ischemia"

Response:
We appreciate the interest of Dr Sposato and his colleagues in our recent publication regarding neurocognitive function improvement after endovascular recanalization in patients with chronic carotid artery occlusion and ipsilateral hemisphere ischemia. The authors call attention to some methodological points in our study and are concerned about the interpretation of the result. First of all, they considered that group analysis may not reflect actual changes of individual patients. We therefore did event rate analysis according to their suggestion and still found a trend of a higher proportion of improvement in the successful group on 3 cognitive tests (Alzheimer Disease Assessment Scale–Cognitive Subtest: 8 of 12 [66.7%] versus 2 of 5 [28.6%), \(P=0.17\); Mini-Mental State Examination: 8 of 12 [66.7%] versus 3 of 7 [42.9%], \(P=0.38\); Color Trail Making A: 9 of 12 [75.0%] versus 2 of 7 [28.6%]), \(P=0.074\), although this was statistically insignificant due to limit patient numbers. Different statistical analysis would reveal different aspects of the data. Event rate analysis may show the actual numbers of participants with improvement but will lose subtle information coming from continuous variables, especially in a small patient population.

The learning effect in patients re-evaluated at a short interval had been regarded as a major flaw affecting a number of previous studies favorable for an improvement in neurocognition after carotid revascularization. There is really no consensus on how to avoid it. So, we think the failed group in our study served as a perfect control that not only had similar baseline characteristics and cognitive status as the successful group, but also underwent the “sham operation.” There was no improvement in any test performed in the failed group, and therefore the “learning effect” can be ruled out. We would like to emphasize this feature to be the uniqueness of our study. In fact, studies trying to demonstrate neurocognitive improvement after carotid revascularization without such a control design should always be scrutinized. In addition, according to our preliminary data from longer-term follow-up, neurocognitive improvement is persistent up to 1 year in patients with chronic carotid artery occlusion or critical stenosis after successful recanalization. These coming results may clarify further the issue of a “learning effect” of tests done at a short interval.

Despite the overall cognitive improvement in the successful group, there are still variations in individual magnitude of changes in patients and tests. A larger patient number and more functional-specific or topographical neuropsychological tests/imaging will be mandatory in future studies.

Disclosures
None.

Mao-Shin Lin, MD
Department of Internal Medicine
National Taiwan University Hospital
Taipei, Taiwan

Graduate Institute of Clinical Medicine
Medical College
National Taiwan University
Taipei, Taiwan

Ming-Jang Chiu, MD, PhD
Department of Neurology
National Taiwan University Hospital
Taipei, Taiwan

Department of Psychology
National Taiwan University
Taipei, Taiwan

Hung-Yuan Li, MD, PhD
Hsien-Li Kao, MD
Department of Internal Medicine
National Taiwan University Hospital
Taipei, Taiwan

4. Huang CC, Lin MS, Chen YS, Chao CC, Chiu MJ, Kao HL. Neurocognitive improvement after carotid artery stenting is persistent up to 1 year in patients with chronic occlusion or critical stenosis. Circulation. 2010;122: A17873.
Response to Letter Regarding Article "Neurocognitive Improvement After Carotid Artery Stenting in Patients With Chronic Internal Carotid Artery Occlusion and Cerebral Ischemia"

Mao-Shin Lin, Ming-Jang Chiu, Hung-Yuan Li and Hsien-Li Kao

Stroke. 2012;43:e11; originally published online December 15, 2011;
doi: 10.1161/STROKEAHA.111.639047

Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2011 American Heart Association, Inc. All rights reserved.
Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://stroke.ahajournals.org/content/43/1/e11

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Stroke can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Stroke is online at:
http://stroke.ahajournals.org//subscriptions/