Leukoaraiosis: From an Ancient Term to an Actual Marker of Poor Prognosis

Leonardo Pantoni, MD, PhD

The term leukoaraiosis (from the Greek leuko, white, and araiosis, rarefaction) was introduced in 1986 by Hachinski, Potter and Merskey to designate bilateral and symmetrical areas in the periventricular and centrum semiovale white matter that appeared hypodense on CT scans and hyperintense on T2-weighted MRI. Leukoaraiosis was supposed to be “a neutral term, exact enough to define white-matter changes, sufficient as a description or label, and demanding significance to these radiological findings, particularly interpreting them as a correlate of cognitive decline. According to some, the introduction of CT had made possible the identification in vivo of subcortical arteriosclerotic encephalopathy (or Binswanger disease), a form of vascular dementia with some, the introduction of CT had made possible the identification in vivo of subcortical arteriosclerotic encephalopathy (or Binswanger disease), a form of vascular dementia with...
settings. In particular, white matter changes have been associated with an increased risk of hemorrhagic transformation of the brain infarct in patients subjected to thrombolysis; this increased risk is probably partially influenced by the copresence of lacunar infarcts. In this issue of *Stroke*, the article by Ay and colleagues adds further evidence about the prognostic significance of leukoaraiosis in this setting. These authors have shown that leukoaraiosis volume at the time of acute ischemic stroke is a predictor of infarct size growth. In this study, leukoaraiosis severity was volumetrically assessed whereas ischemic lesions on admission and follow-up were identified with diffusion and perfusion images. Clearly, this protocol is applicable only in centers with high expertise in neuroimaging techniques and not on a routine basis. But the relevance of the study is to have shown that a neuroimaging correlate of an underlying parenchyma and vessel disease is able to predict outcome in terms of infarct extension. When implemented in clinical practice, these data could provide a basis for a better selection of patients undergoing interventions in the acute phase of stroke.

Taken together, these recently acquired data indicate that the view that white matter changes are an innocuous and incidental finding or a topic to be left to the discussion of a small group of researchers should be now disregarded. Like other biological markers of an underlying disease, leukoaraiosis needs to be carefully looked at, assessed, and quantified; further studies will tell us whether this can be done by using simple visual rating scales or if it requires volume assessment and more sophisticated MRI techniques.

**Disclosures**

None.

**References**


KEY WORDS: leukoaraiosis ■ white matter changes ■ disability ■ MRI ■ prognosis ■ stroke
Leukoaraiosis: From an Ancient Term to an Actual Marker of Poor Prognosis
Leonardo Pantoni

Stroke. 2008;39:1401-1403; originally published online March 13, 2008;
doi: 10.1161/STROKEAHA.107.505602
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2008 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/39/5/1401

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/