Hemorrhagic Transformation of Cardioembolic Stroke

To the Editor:

Two recent reports in Stroke provide interesting information and prompt further speculation about hemorrhagic transformation of cardioembolic stroke.1,2 Secondary hemorrhagic transformation of presumed cardioembolic stroke is usually not associated with recognized clinical worsening.3,4 Definition of the temporal window of hemorrhagic transformation has been based on retrospective case series in which computed tomography (CT) data were collected at nonstandard time intervals, perhaps in patients with late hemorrhagic transformation that was undetected and therefore not included.5–7 The single prospective study using serial CTs up to 3 weeks after stroke reported an extraordinarily high prevalence of hemorrhagic infarction (43% of all supratentorial infarcts, 61% of presumed cardioembolic infarcts).8 While initial case collections suggested that the great majority of spontaneous hemorrhagic transformation occurred within 2–4 days of cardioembolic stroke (Figure 1),1,2,5 multiple case reports have since documented later occurrence.6–9 In short, the exact limits of the window of spontaneous secondary hemorrhagic transformation remain ill-defined. There is clearly a delay between stroke onset and the development of hemorrhagic transformation detected by CT. In the CT/autopsy series of Lodder et al,1 only 10% (22/214) of the infarcts had definitely transformed before 24 hours, while very early infusion of fibrinolytic agents (<6 hours) in cardioembolic stroke may safely precede the period of hemorrhagic transformation, recanalization may be less frequently achieved in thrombi of left atrial origin.

References

Hemorrhagic transformation of cardioembolic stroke.
R G Hart and C Putnam

Stroke. 1989;20:1117
doi: 10.1161/01.STR.20.8.1117

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/20/8/1117.citation

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/