Statins in the Management of Aneurysmal Subarachnoid Hemorrhage—Not (Yet) a Standard of Care

To the Editor:

The use of statins after aneurysmal subarachnoid hemorrhage (SAH) has a strong scientific rationale and appears promising in preliminary clinical studies. However, the assertion by Sillberg et al that their meta-analysis “supports the routine use of statins” is too strong. This conclusion was based on the cumulative experience from three small single-center clinical trials involving a total of only 158 patients. The purported reduction in mortality (reported in only 2/3 trials) was based on 11 deaths among control patients compared with 2 deaths among statin-treated patients. Because of the small numbers, this finding is not particularly robust—if there had been, for example, one less death in the first group and one more in the latter, the difference would no longer have been statistically significant (P = 0.07, Fisher exact test).

For clinicians who regularly care for these complex patients, it seems highly unrealistic that we can prevent one death simply by treating 6 to 7 patients with a statin. If, rather than using mortality as an outcome, the authors had compared the composite of death or significant neurological disability (modified Rankin score 3 to 6) among statin-treated versus untreated patients, the difference would not have even approached statistical significance (Figure 1). This is especially important when one considers that the immediate cause of death among neurocritical care patients is frequently withdrawal of life-sustaining care based on the belief that the prognosis is poor.

The way the authors have combined data relating to vasospasm and delayed ischemia is problematic. Lynch et al reported the proportion of patients with “clinical” or “symptomatic” vasospasm, which they defined as a change in neurological status in association with either (1) transcranial Doppler (TCD) mean MCA velocities >160 cm/s or (2) angiographic vessel narrowing. This definition is synonymous with “delayed ischemic deficits” (DIDs), and therefore really belongs with the data in Figure b of the paper, rather than Figure a. Combining results from the three trials does indeed suggest that statins may reduce clinical vasospasm / DIDs, although this difference is heavily influenced by one of the studies, where statins had a very strong effect (Figure 2).

It is notable that Chou et al actually found the occurrence of TCD-defined vasospasm (peak MCA velocity >200 cm/s and Lindegaard ratio >3) to be higher with statins than in control patients. Combining this data with the findings of Tseng et al (mean MCA velocity >120 cm/s and Lindegaard ratio >3) does not confirm that statins ameliorate TCD-defined vasospasm (Figure 3).

Finally, I disagree that observational research consistently supports a benefit from statins. Although modest in size and retrospective in design, our recent “before and after” study comparing 71 statin-treated patients (the largest published experience to date) with 79 untreated patients did not find statins to be “effective” in reducing clinical vasospasm or improving outcomes. Other retrospective studies have similarly failed to confirm a benefit.

At present, there exists equipoise regarding the efficacy of statins after SAH. Thus, their widespread use should not (yet) be encouraged. Hopefully, the ongoing STASH trial, seeking to enroll 1600 patients, will provide a definitive answer.

Disclosures

None.

Andreas H. Kramer, MD, MSc, FRCPC
Departments of Critical Care Medicine & Clinical Neurosciences
University of Calgary
Alberta, Canada

3. Sillberg VAH, Wells GA, Perry JJ. Do statins improve outcomes and confirm a benefit.6–7
Figure 1. Effect of statin use on the development of significant neurological disability (mRS 3–6).

Figure 2. Effect of statin use on the development of symptomatic vasospasm.

Figure 3. Effect of statin use on the development of TCD-defined vasospasm.
Statins in the Management of Aneurysmal Subarachnoid Hemorrhage—Not (Yet) a Standard of Care
Andreas H. Kramer

Stroke. 2009;40:e80-e81; originally published online January 29, 2009;
doi: 10.1161/STROKEAHA.108.539031
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2009 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/40/3/e80

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/