Anticoagulation in Cerebral Ischemia Associated With Intracranial Artery Dissections Is Safe, but Is It Enough to Recommend It?

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See related article, pages 1837–1842.

In most textbooks, intracranial artery dissections are considered rare, difficult to diagnose, and associated with a high risk of subarachnoid hemorrhage (SAH). Three different clinical presentations are described: (1) cerebral ischemia, when the mural hematoma remains subintimal, ie, located between the media and the elastica interna, leading to vessel stenosis or occlusion; (2) SAH when the mural hematoma is subadventitial, ie, located between the media and the adventitia, or transmural, leading to vessel rupture; and (3) acute and isolated headache. Cerebral ischemia and headache are not specific, because they are also present in most patients with cervical artery dissections. Bleeding is a specificity of intracranial artery dissections. It is explained by structural differences between cervical and intracranial arteries: the latter has no external elastic membrane, and thin muscular and adventitial layers.

There is no clear evidence-based data that anticoagulation, or even antplatelet therapy, may be beneficial in patients with cerebral artery dissection, even if there is a strong rationale for their use, and some indication of a good safety profile. In pure intracranial artery dissections, or in intracranial extensions of cervical artery dissections, the risk of anticoagulation or antplatelet therapy may be high because of this bleeding risk.

In this issue of Stroke, Metso et al describe the largest series of patients with intracranial artery dissections reported up to now. They identified 2 types of intracranial artery dissections: (1) those associated with ischemia, where there is no SAH, no aneurism, a good outcome, and a good safety profile of anticoagulation; and (2) those revealed by SAH, associated with an aneurism, and a worse outcome. The good safety profile of anticoagulation in cerebral ischemia associated with intracranial artery dissections is an important finding in this study that may have major clinical implications.

However, these results should be taken into account cautiously for several reasons. Firstly, although this study gathered this important number of patients, the sample size is still small from a statistical point of view. The absence of bleeding complication in 81 patients shows that the risk is low, but does not prove it does not exist at all. Secondly, even if, as it is likely to be the case, anticoagulation is safe at the acute stage of cerebral ischemia in intracranial artery dissections patients, there is no proof—in the absence of randomized trials—that it provides a benefit over antplatelet therapy or even no treatment at all. Thirdly, the natural history of intracranial artery dissections with cerebral ischemia remains unknown in terms of recurrence risk. This is an important issue because anticoagulation is supposed to prevent early recurrences, not to reduce the severity of stroke.

This study provides important results on the safety profile of anticoagulation in patients with intracranial artery dissections, but this is not enough to recommend anticoagulation. Assuming that early recurrence rate is very low, no case having been reported in 81 patients, if we hypothesize that anticoagulation reduces by ~25% early recurrences, >10,000 patients would have to be randomized in an early prevention trial, which is unrealistic for such a rare disease. Therefore, in the absence of randomized trials the decision will be left to the clinical judgment of the neurologist. This study provides 2 important clinical messages: (1) anticoagulation is safe in the absence of bleeding, and (2) recurrences being rare anticoagulation may have a limited indication.

Another major interest of this study is to report a large series of intracranial artery dissections associated with cerebral ischemia. As stated by the authors, most of the literature on intracranial artery dissections has been published by neurosurgical teams, explaining a probable overrepresentation of cases with SAH and aneurysms. This series, although retrospective, is a good representation of intracranial artery dissections in the general population because the authors included all consecutive patients admitted in the only neurological and neurosurgical emergency unit of Helsinki and surroundings.

We are not sure that clinicians will change their practice after this study. Those who believe anticoagulation is useful will continue and argue that it is safe, and those who are more reluctant to use anticoagulation will probably not change their strategy, arguing that the action of anticoagulation is to prevent early recurrences, which are rare, if they exist. As often with good studies, we have more questions at the end than before. Larger multicenter registries, with different strategies left to the opinion of the clinicians, may help to better define the natural history of the disease. The study reported by Metso et al is obviously the first significant piece of the puzzle.

Disclosures

None.
References


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