malformations and along the collateral circulation of the occlusion of major cerebral arteries. However, we believe that multiple aneurysms have never been observed in the contiguous circulation associated with the occlusion of a major cerebral artery until our recent patient. A 67-year-old woman, who had suffered from untreated hypertension for 6 years, had cerebral angiography demonstrating occlusion of the right middle cerebral artery at its origin. The area normally fed by the occluded right middle cerebral artery was compensated by collateral circulation from the ipsilateral anterior cerebral artery via the leptomeningeal anastomosis. Three saccular aneurysms had developed in the peripheral portion of the anterior cerebral artery proximal to the leptomeningeal anastomosis, in a direction consistent with blood flow.

The anterior communicating artery is a frequent location for the development of cerebral aneurysms associated with the occlusion of a major cerebral artery. Aneurysms in the terminal portion of the basilar artery and the junction of the posterior cerebral and posterior communicating arteries have also been reported in a patient with internal carotid artery occlusion. However, the present aneurysm in the peripheral portion of the anterior cerebral artery is the first described, and multiple aneurysms associated with occlusion of a major cerebral artery have been reported in only two cases. In both cases, the aneurysms were located in different arteries, in contrast to this case.

Several investigators consider that both hemodynamic stress and hypertension play an important role in the development of cerebral aneurysms. Experimentally, Hashimoto et al induced cerebral aneurysms in rats and monkeys using unilateral or bilateral carotid artery ligation in the presence of β-aminoproprionitrile and hypertension. Nagata et al induced aneurysms in rats by carotid artery ligation and hypertension without β-aminoproprionitrile. Thus, these investigators showed experimentally that, in addition to increased hemodynamic stress, stress on the arterial wall caused by hypertension will promote the development of cerebral aneurysms.

Our findings also suggest that increased hemodynamic stress and the development of aneurysms are related.

Masayuki Ezura, MD
Shigeki Kagawa, MD
Department of Neurosurgery
Shirakawa Kosei Hospital
Sendai, Japan

References

Future of Stroke Management

To the Editor:

The simple, but elegant, experiments recently reported by Kaplan et al emphasizing similar recent findings by others gives both reason for despair and reason for hope to clinicians dealing with ischemic stroke.

The despair arises from the fact that, as the experiments from the Cornell group indicate, infarction and edema are maximal at 3 hours and do not change much even at 24 hours, suggesting a therapeutic window even briefest than generally believed, at least in rats. Only a tiny minority of patients could be delivered to primary care facilities for treatment in this short time, based on the present system for deployment of ambulance and emergency facilities in most hospitals.

There is reason for a glimmer of optimism, however. Just because pathological effects are maximal at 3 hours does not mean that the clinical effects cannot be reversed after several hours since other factors are involved, some of which are probably reversible (e.g., the ischemic penumbra). There is also the implication that almost no drug trials have ever really been tried in ischemic stroke, since most published studies have had therapeutic windows of days, not hours (there are a few exceptions, such as the Italian Ganglioside Study). Thus all previous stroke trials need to be repeated.

Most important of all, the facts of these reported experiments emphasize that physicians, hospital administrators, ambulance services, and the public will need a new perspective of stroke care in much the same way that “coronary care” and cardiac arrest care have been revised in recent years. If ischemic stroke is a potentially reversible state, these patients must be delivered to health care facilities as medical emergencies, which is opposite to the way in which they are viewed in most of the world at present.

J.W. Norris, MD
University of Toronto
Toronto, Canada

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J W Norris

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