

Acute Ischemic Stroke: Adopting a New Vision

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The stroke neurologist today faces an impossible dilemma. On one hand, the natural course of events around ischemic stroke leaves the treating physician a very short window of opportunity, about 3–6 hours, to intervene and reverse the brain tissue damage using intraarterial thrombolysis. On the other hand, current practice wastes this precious time on unsupervised transportation to the hospital and admission, if lucky, to a stroke unit but in most cases to an internal medicine ward for supportive care only since there is no single treatment modality that can reverse damaged brain tissue [1,2].

The chances of reversing the brain damage after more than 3 hours from the time of arterial occlusion are very poor. Combining this short time frame with the fact that invasive neuroradiology is a complex and extremely demanding specialty, it is not surprising that intraarterial thrombolysis with recombinant tissue plasminogen activator has failed to gain worldwide acceptance.

An innovative technique for early recanalization of large intracranial arterial occlusion is described by Cohen et al. in this issue of *IMAJ* [3]. The use of a mechanical thrombectomy device ensures early restoration of cerebral perfusion and thus shortens the cerebral ischemic time and increases the chance of functional recovery. This recanalization technique is

taken a step further in a case report by the same authors in this issue [4], where they describe their treatment of a patient with synchronous internal carotid artery occlusion and intracranial artery embolism. In a case like this, in order to enhance the potency of the thrombolytic therapy for distal carotid occlusion the mechanical thrombectomy device is used, enabling thrombolytic therapy [4].

This new technique raises a few technical issues. First, how do we prevent the thrombus from being dislodged distally during the endovascular manipulations? The current approach to treating carotid lesions by stenting is to use a protection device [5]. What is the place of such a device in a thrombosed artery? Second, resheathing the stent will surely cause endothelial injury of some kind, not yet defined. What are the long-term effects of such a maneuver on the atherosclerotic process in those arteries? Only time will tell.

However, the main question raised by Cohen and his team [3] is the change of attitude that must take place in the medical community. And it is not only the modern-day stroke neurologist who will need a conceptual change. Just as neurology will have to become an interventional field, as cardiology has, so the current approach of the emergency services in Israel (Magen David Adom) to the stroke victim will also have to change. They will have to adopt the same treatment approach currently being applied to patients with acute coronary events, i.e., begin the appropriate treatment on the way to the hospital and admit the patients directly to the intensive care unit; here the diagnostic workup

is completed ASAP and the patient is then transferred to the catheterization suite for revascularization. This means that the MDA would have to work with the neurologists in the same manner as they currently do with the cardiologist, and emergency room personnel will need to be reeducated with regard to the approach to stroke patients.

The technique described by Cohen and co-authors is a challenging one, and it is of paramount importance that more trained neurologists acquire such capabilities. Nevertheless, this technique should be limited to a few specialized centers with radiological neurointerventional ability.

It appears we are entering a new era of stroke treatment, which looks promising and could lead to better results and a better future for these patients.

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