Utilizing a population-based study, Dr Majersik and her coworkers provide excellent data on stroke patient arrival times in a community without academic centers. Because most patients present after 3 hours from stroke onset—the ratio in their study is 62% to 69% of patients—the idea of Majersik and her coworkers is to extend the time window beyond 3 hours to make more stroke patients eligible for recanalization therapy. Of those 31% to 38% of their patients presenting within the 3-hour time window, 4% received intravenous recombinant tissue plasminogen activator (rt-PA), which compares well with the 5% of acute stroke patients receiving rt-PA in the United States. Because effective recanalization therapy is time dependent, we should concentrate our efforts on shortening the onset to treatment times instead of trying to extend the time window for such therapies. The experience in Helsinki shows that it is possible to increase the number of patients treated within 90 minutes from the onset of symptoms and even earlier, and thereby increase the number of patients with good outcome.

In the efforts to extend the time window for reperfusion beyond 3 hours, desmoteplase has been closest to a breakthrough. Both DIAS and DEDAS trials revealed that when using diffusion-perfusion MRI in the patient selection desmoteplase recanalized occluded brain arteries up to 9 hours and the majority of patients with recanalization had a good functional outcome. DIAS-2 could not verify the results of DIAS and DEDAS. Why not, is not presently understood. The data will be analyzed thoroughly, but it will take some time before a definitive pivotal study is executed and will lead to licensing of desmoteplase in acute ischemic stroke, if ever. The history of desmoteplase demonstrates that it is better to organize our services than to just wait for major breakthroughs leading to an extension of time window for recanalization therapy. Even if such a novel treatment was available, the treatment would not help most of the patients with acute stroke arriving late because ischemic penumbra, the target of the recanalization therapy, will shrink. The pooled analysis of ATLANTIS, ECASS and NINDS rt-PA trials revealed that the efficacy of thrombolysis diminished by time and after 4.5 hours a minority of patients benefit from intravenous thrombolysis. Patients of the pooled analysis were selected by native CT. Modern neuroimaging may help select patients with salvageable brain tissue after 3 hours; their number is, however, limited by the time. The experiences of Helsinki in DIAS and DIAS-2 showed that 1 of 5 patients had a large enough ischemic penumbra to allow the enrollment in these trials, ie, majority of patients arriving beyond 3 hours did not have an ischemic penumbra to be salvaged any longer.

Stroke patients do not have the option of waiting for breakthroughs leading to an extended time window for recanalization therapies. They need the best treatment available and they need it now. Would it be possible to increase the number of patients receiving intravenous rt-PA therapy immediately? There is strong evidence that it is. The SITS-MOST register, the official stroke thrombolysis register of the European Union Health Authorities, revealed that in Finland more acute stroke patients receive rt-PA therapy than in any other EU nation. The inclusion criteria for the register were the official labeling criteria of rt-PA approved by the European Agency for the Evaluation of Medical Products (EMEA). SITS-MOST data shows that using these criteria 110 ischemic stroke patients per one million inhabitants receive intravenous rt-PA in Finland. However, the sister register for the SITS-MOST, SITS-ISTR, an academic register including also patients over 80 and under 18 years of age and those treated after 3-hour time window, reveals that in Finland 190 acute stroke patients per one million inhabitants receive thrombolytic treatment. These registers prove that it is possible to provide thrombolysis safely and effectively nationwide to a reasonable proportion of ischemic stroke patients. They also reveal that while waiting for novel therapies that may allow us to expand the time window for thrombolysis, it is possible to increase the number of patients treated with thrombolysis by organizing one’s stroke services well. We should target our efforts at organizing our prehospital and in-hospital stroke pathways, the Chain of Recovery. By doing so we have been able to shorten the door-to-needle time from 1.5 hours to an average of 25 minutes, and the number of patients treated with rt-PA has increased year after year. Today 15% of our 1200 ischemic stroke patients receive thrombolysis.

No treatment is effective, if those who need it are not aware of it and do not seek for it. One of the immediate possibilities to increase the number of patients treated with recanalization therapies is to improve the knowledge of lay people about stroke and what to do if someone experiences it. There are many ways to improve the knowledge about stroke to ensure that all patients have an equal opportunity for good care, but it asks for hard work, persistence and good relationships with media.

In rural areas with long distances to comprehensive stroke centers and primary stroke centers telemedicine is a good
alternative to increase the number of stroke patients treated with thrombolytics. It is much faster to move know-how than patients. Telemedicine is at present available in many parts of the world. To increase the availability of telemedicine in stroke care, American Heart Association has founded a Stroke Telemedicine Writing Group to write guidelines for it. When telemedicine will be applied more widely it will most likely assure a more equal opportunity for stroke thrombolysis.

There is no need to wait for major breakthroughs to expand the time window beyond 3 hours. It is already now possible to organize one’s services and provide thrombolysis to more acute stroke patients. If the local Chain of Recovery is not functioning well, one only needs to look in the mirror to see the reason for it.

Disclosures
None.

References

Key Words: acute stroke ■ brain infarction ■ organized stroke care ■ stroke care ■ thrombolysis