

Direct catheter-based thrombectomy equal to bridging thrombolysis in ischemic stroke

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Direct catheter-based thrombectomy is equally effective to bridging thrombolysis in the treatment of acute ischaemic stroke, according to results from the observational PRAGUE-16 registry study presented at ESC Congress 2016 today.

"If left untreated, acute ischaemic [stroke](#) caused by a major artery occlusion results in [death](#) for up to half of patients and an additional 40% to 50% are left permanently disabled," said principal investigator Professor Petr Widimsky, head of the Third Faculty of Medicine, Charles University, Prague, Czech Republic. "In other words, without treatment only a few patients with major ischaemic stroke survive without severe sequelae."

Functionally independent survival (defined as a modified Rankin Scale score of 0-2) after these major strokes increases to approximately 20% to 30% with thrombolytic treatment in specialised stroke units. But the majority of patients still die or remain permanently disabled.

In 2015 several randomised trials demonstrated that 45% to 50% of patients can survive and be functionally independent with catheter-based (endovascular) mechanical thrombectomy. If the intervention is performed very early (within three hours from stroke onset), the results are even better - up to 70% of patients may return to normal daily life. Thus, catheter-based mechanical thrombectomy is now recommended for all patients with acute ischaemic stroke caused by a major artery occlusion.

However, many questions remain, of which two were investigated in this pilot study. First, whether direct (without [thrombolysis](#)) catheter-based thrombectomy (d-CBT) can achieve comparable results to thrombectomy performed after intravenous ("bridging") thrombolysis. And second, whether catheter-based thrombectomy performed in interventional cardiology departments (when no interventional neuroradiology department is available) can achieve results comparable to neuroradiology settings.

Professor Widimsky said: "The study aim was to evaluate the feasibility and safety of d-CBT performed in close cooperation between cardiologists, neurologists and radiologists - a true interdisciplinary approach."

PRAGUE-164 was a prospective, observational pilot registry study. It included 103 patients who presented within six hours from the onset of moderate to severe acute ischaemic stroke. Patients had an occluded major cerebral artery but no large ischaemia yet on a computed tomography (CT) scan. The attending neurologist decided whether patients received d-CBT or bridging thrombolysis plus CBT based on the clinical picture and CT scan. The intervention was performed within 60 minutes of the CT scan.

Some 73 patients received d-CBT and 30 had bridging thrombolysis plus CBT. Good functional outcome (defined as a modified Rankin Scale score of 0-2 after 90 days) was achieved in 41% patients overall with similar results between the two groups (table 1).

Professor Widimsky said: "In our study, 41% of patients who received direct catheter-based thrombectomy had good functional recovery. This compares to 48% of patients given this intervention in seven randomised trials⁵ performed in expert neuroradiology units. However, our outcomes are significantly better than [patients](#) in the trials who received

medical therapy (intravenous thrombolysis) alone, of whom only 30% recovered."

He concluded: "Our findings suggest that direct catheter-based thrombectomy performed in a timely manner may be an alternative to thrombectomy after bridging thrombolysis. Furthermore, in regions with no (or limited) interventional neuroradiology services, modern stroke [treatment](#) might be offered via interventional cardiology services in close cooperation with neurologists and radiologists. However, both of these preliminary conclusions should be confirmed by larger multicentre studies or large international registries."

More information: "Feasibility and safety of direct catheter-based thrombectomy in the treatment of acute ischemic stroke. Prospective registry PRAGUE-16" ESC Congress 2016.

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