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Media release

## **Stroke study demonstrates excellent results with combination therapy**

**An international study led by the Inselspital, University Hospital Bern, demonstrates that in stroke patients with an occlusion of a large cerebral vessel, a combined procedure – first thrombolysis, then thrombectomy – shouldn't be replaced by thrombectomy alone. Using combination therapy, the occluded cerebral vessel could be reopened in 96% of those affected. The researchers are therefore making an important contribution to clarifying an ongoing controversy amongst experts.**

Around 80% of all strokes are caused by a hypoperfusion of the brain. The most common cause is a blood clot that blocks a cerebral vessel. This is referred to as a brain infarction or – using medical terminology – an ischaemic stroke. The clot stops the brain cells from receiving enough oxygen and nutrients, and therefore they die. To prevent permanent damage or even the death of the affected person is, the clot must be removed as quickly as possible.

Currently, the emergency treatment of cerebral infarction is based on two essential measures: thrombolysis, also known as lysis therapy, or lysis for short, and thrombectomy. Both pursue the same goal, namely the restoration of blood flow. Lysis therapy involves giving stroke patients a drug to dissolve the blood clot. Thrombectomy refers to the mechanical removal of the clot using catheters.

### **Thrombectomy with or without prior thrombolysis?**

As a rule, stroke patients who undergo thrombectomy, receive lysis first. However, as lysis treatment can increase the risk of bleeding, the question arises whether the combined procedure is necessary or whether thrombectomy alone – if performed immediately – can achieve equally good or even better results. Four recently published international studies came to contradictory conclusions, leading to uncertainty among experts.

A new international study led by the Stroke Center, Inselspital, University Hospital Bern, makes an important contribution towards settling this controversy. The study shows that the results of using thrombectomy alone are not as good as when the combined procedure – first lysis, then thrombectomy – is used. The results were published in the latest issue of the renowned medical journal "The Lancet".

### **The chances of reopening the cerebral vessels are significantly higher with combination therapy**

For the study, 408 patients with an acute stroke were recruited at 48 different stroke centres in Europe and Canada between 2017 and 2021. Half of the study participants were randomly assigned to undergo thrombectomy alone and the other half received a combination of thrombolysis and thrombectomy.

With the combination therapy, blood flow to the blood vessels was restored in 96% of stroke patients, compared to only 91% of those treated with thrombectomy alone. The percentage of patients who were able to live independently again three months after the stroke was 65% if they had had combination therapy and 57% if they had had thrombectomy alone. Patients' risk of bleeding in the brain was not significantly higher after combination therapy than it was after thrombectomy alone (3% compared to 2%).

"In view of our results, when caring for stroke patients who are suitable for thrombolysis, skipping lysis treatment before thrombectomy is not justified", commented the study leaders Prof. Dr med. Urs Fischer and Prof. Dr med. Jan Gralla from the Stroke Research Center at the Inselspital. "The study also shows that the combination therapy succeeds in reopening the affected cerebral vessels in the vast majority of cases. The decisive factor for preventing disability remains the speed with which the treatment can be initiated – meaning, as quickly as possible".

As the next step, the researchers plan to test a therapeutic procedure in which small doses of a blood clot dissolving drug are administered after thrombectomy. This study, again involving several international stroke centres, will start in late summer this year. "If it shows a positive result, in future lysis could be administered not only before but also selectively after thrombectomy and thus further reduce the degree of disability in stroke patients", commented the head of the study PD Dr med. Johannes Kaesmacher.

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