

# Carotid artery stenting during endovascular treatment of acute ischemic stroke

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<b>Registration date</b> 18/01/2023	<b>Overall study status</b> Ongoing	<input checked="" type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
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## Plain English summary of protocol

### Background and study aims

A stroke is a serious life-threatening medical condition that happens when the blood supply to part of the brain is cut off. Approximately 1 in 5 patients suffering stroke have a narrowed carotid artery. It is not yet known if early treatment to insert a tube (stent) into the narrowed artery to hold it open and prevent future stroke is worth the difficulties associated with such treatment.

### Who can participate?

Patients with acute ischemic stroke with a CT-angiography-proven intracranial LVO in the anterior circulation (ICA, A1, M1 or M2) as well as an ipsilateral cervical carotid artery tandem lesion of presumed atherosclerotic origin with a stenosis >50% or an ipsilateral acute proximal internal carotid artery occlusion who are treated with EVT according to the guidelines.

### What does the study involve?

Patients will be randomly allocated to receive either a carotid artery stent immediately after suffering a stroke, or to treatment as usual.

### What are the possible benefits and risks of participating?

Nature and extent of the burden and risks associated with participation, benefit and group relatedness: All patients are being treated with EVT according to the local guidelines. The patients allocated to the intervention group will undergo CAS during EVT, which carries a risk of cerebral hyperperfusion syndrome and subsequent intracerebral hemorrhage. The potential benefits of immediate CAS during thrombectomy include: an improvement of cerebral blood flow during and after EVT. A second benefit is a lower risk of recurrent stroke in the first 14 days compared to the deferred treatment strategy. A third benefit of immediate CAS is that the patient does not need a second invasive treatment (carotid revascularization surgery (CEA or CAS) during the rehabilitation period which again carries some risk of complications. At last, the immediate CAS approach is likely to reduce health care costs.

Where is the study run from?

The study will be coordinated by the University Medical Center Groningen in the Netherlands and by the University Hospital Leuven in Belgium. 26 centres (9 in Belgium and 17 in the Netherlands) will participate.

When is the study starting and how long is it expected to run for?

November 2022 to November 2026

Who is funding the study?

The study is part of the COllaboration of New TReatments of Acute STroke (CONTRAST) consortium (<https://www.contrast-consortium.nl>).

The study is funded by the BeNeFIT funding members (ZonMw/KCE) (the Netherlands)

Who is the main contact?

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## Contact information

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## Additional identifiers

ClinicalTrials.gov (NCT)  
NCT06511089

## Study information

### Scientific Title

Carotid Artery Stenting during Endovascular treatment of acute ischemic Stroke: a randomized multicenter clinical trial in patients with acute ischemic stroke and carotid artery stenosis undergoing endovascular treatment

### Acronym

CASES

### Study objectives

Immediate carotid artery stenting is non-inferior compared to a deferred treatment of carotid artery stenosis/occlusion in patients with large vessel occlusion in the anterior circulation treated with endovascular thrombectomy.

### Ethics approval required

Ethics approval required

### Ethics approval(s)

1. approved 19/06/2023, Medische Ethische toetsingscommissie Erasmus MC Rotterdam (Postbus 20403000, Rotterdam, CA, Netherlands; +31 10-70 34428; metc@erasmusmc.nl), ref: NL79046.078.23 (MEC-2023-0131)
2. approved 19/06/2023, Ethics Committee Research UZ/KU Leuven (UZ Leuven, Herestraat 49, Leuven, B 3000, Belgium; +32 16 34 86 00; ec@uzleuven.be), ref: B3222022001112. (S65073)

### Study design

Randomized multicenter clinical trial with a PROBE design and a non-inferiority design.

### Primary study design

Interventional

### Study type(s)

Efficacy, Safety, Treatment

### Health condition(s) or problem(s) studied

Acute ischemic stroke in patients with large vessel occlusion in the anterior circulation and a concomitant high grade ipsilateral carotid artery stenosis or occlusion of presumed atherosclerotic origin..

### Interventions

Patients with an ipsilateral high grade carotid artery stenosis or occlusion of presumed atherosclerotic origin and an proximal intracranial large vessel occlusion in the anterior circulation will be randomized using a web-based randomization tool to immediate carotid artery stenting or deferred treatment strategy of carotid artery stenosis.

In the intervention group, the cervical carotid artery lesion will be treated with a stent during the EVT (just before or directly after intracranial thrombus removal), the control group will be treated according to the national guidelines with carotid endarterectomy or carotid artery stenting (for patients with non-disabling stroke) or medical management alone (for patients with severe disabling stroke).

Follow up at 90 days.

### **Intervention Type**

Procedure/Surgery

### **Primary outcome(s)**

Stroke-related disability measured using the Modified Rankin Scale (mRS) Score at 90 days after stroke onset. The mRS score will be assessed by stroke research personnel by telephone interview, blinded for the treatment allocation

### **Key secondary outcome(s)**

1. NIHSS score at 24 hours and day 5-7, or at discharge (Medical examination)
2. Adequate recanalization after EVT (TICI 2b or higher) (Review of performed imaging)
3. Final infarct volume on brain CT at 24 hours (Review of performed imaging)
4. Arterial occlusive lesion (AOL) score on CTA at 24 hours (Review of performed imaging)
5. Any stroke within 90 days (Obtained from medical records)
6. Recurrent ipsilateral TIA/ischemic stroke within 90 days
7. Carotid artery re-occlusion at 24 hours and 90 days (Review of performed imaging)
8. Mortality at 90 days (Obtained from medical records)
9. Quality of life (EQ5D-5L) questionnaire at 90 days

### **Completion date**

15/11/2026

## **Eligibility**

### **Key inclusion criteria**

1. Acute ischemic stroke due to proximal intracranial occlusion in the anterior circulation (intracranial ICA, M1, proximal M2) on the CT angiography
2. Stenosis >50% according to the NASCET criteria<sup>16</sup> or initial occlusion of the ipsilateral cervical carotid artery of presumed atherosclerotic origin on baseline CT angiography
3. Eligible for EVT according to the guidelines: EVT within 6 hours of onset or EVT between 6-24 hours after onset based on perfusion CT imaging selection (conform current guidelines)
4. Baseline National Institute of Health Stroke Scale (NIHSS) score  $\geq 2$
5. Age >18 years
6. Written informed consent (deferred consent)

### **Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Mixed

**Lower age limit**

18 years

**Upper age limit**

99 years

**Sex**

All

**Total final enrolment**

0

**Key exclusion criteria**

1. Any intracranial hemorrhage
2. Cervical carotid artery stenosis or occlusion with other causes than presumed atherosclerosis (e.g. carotid artery dissection, floating thrombus, carotid web)
3. Any exclusion criterion for EVT according to the guidelines
4. Pre stroke disability (defined as a modified Rankin Scale score >2)
5. Recent gastro-intestinal or urinary tract hemorrhage (<6 weeks)
6. Recent severe head trauma (<6 weeks)
7. Recent infarction on baseline brain CT in the same vascular territory (<6 weeks)
8. Known allergy to aspirin and/or clopidogrel
9. Pregnancy

**Date of first enrolment**

19/06/2023

**Date of final enrolment**

29/11/2025

**Locations****Countries of recruitment**

Belgium

Netherlands

**Study participating centre**

University Medical Center Groningen

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Groningen

Netherlands

9713 GZ

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4818 CK

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**Study participating centre**

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## **Sponsor information**

**Organisation**  
University Medical Center Groningen

**ROR**  
<https://ror.org/03cv38k47>

## **Funder(s)**

**Funder type**  
Government

**Funder Name**  
BeNeFIT call funding member (ZonMw and KCE)

## Results and Publications

**Individual participant data (IPD) sharing plan**

The datasets generated during and/or analysed during the current study are/will be available upon request after central review by the "Data Access Writing Committee" from the CONTRAST consortium.

**IPD sharing plan summary**

Available on request

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Protocol article</a>		16/02/2025	04/02/2026	Yes	No
<a href="#">Statistical Analysis Plan</a>	version 1.0	22/01/2025	04/02/2026	No	No
<a href="#">Study website</a>	Study website	11/11/2025	11/11/2025	No	Yes