

Henrik Steglich-Arnholm

will defend his PhD-thesis:

Propensity-Score Matched Clinical Radiographic Assessment and Systematic Review of Endovascular Therapy in the Management of Acute Anterior Circulation Ischemic Stroke – PREPARE



Friday, June 2nd at 14:00

**Auditorium 93, Juliane Maries Vej 20, Rigshospitalet, Copenhagen
(entrance from Henrik Harpestrengsvej)**

All are welcome!

**After the defence, light snacks and drinks are served in the auditorium on
The Department of Neurology 2082, Rigshospitalet Entrance 2, 8 th floor.**

Evaluating Committee:

Professor Messoud Ashina, MD DMSc, Department of Clinical Medicine, University of Copenhagen, Denmark. (Chairperson)
Professor Grethe Andersen, MD DMSc, Institut for Klinisk Medicin - Neurologisk afdeling F, NBG, Aarhus University, Denmark
Professor Jens Fiehler, MD DMSc, Department of Diagnostic and Interventional Neuroradiology, University Medical Center Hamburg-Eppendorf, Germany

Thesis supervisors:

Derk W. Krieger, MD PhD, Department of Neurology, Comprehensive Stroke Centre, University Hospital Zurich, Switzerland
Helle K. Iversen, MD DMSc, Department of Neurology, Rigshospitalet, Copenhagen, Denmark
Markus Holtmanspötter, MD, Department of Neuroradiology, Rigshospitalet, Copenhagen, Denmark
Christian Gluud, MD DMSc, Copenhagen Trial Unit, Centre for Clinical Intervention Research, Rigshospitalet, Copenhagen, Denmark

Thesis Summary

Acute ischaemic stroke is a worldwide leading cause of death and disability. Through the last two years endovascular intracranial clot removal has proven effective for large vessel occlusion acute ischaemic stroke and is now the preferred treatment. However, several concerns still exist in acute stroke management. Two of these, carotid stenting in acute ischaemic stroke and performance of a novel thrombectomy device design, will be presented in this thesis.

Concerning the first problem, patients with concomitant extracranial carotid high-grade stenosis or occlusions and intracranial embolism present a special therapeutic conundrum since the carotid lesion constitutes an obstacle for intracranial access and may limit intracranial flow. Management of the carotid lesion during acute endovascular therapy is currently discussed because of the risk for procedural complications. This thesis assesses the outcomes and safety of carotid stenting in patients with concomitant extracranial carotid lesions and intracranial embolism. Both in patients that show intracranial recanalisation at the time of neurointervention and patients that required treatment with intracranial thrombectomy. Furthermore, the evidence for carotid stenting in this situation was evaluated through systematic review of the literature.

Concerning the second problem, thrombectomy device design has previously shown to be important for the efficacy of the device for clot removal. The classic stent-retriever design that was predominantly used in the recent randomised thrombectomy trials was originally invented for stabilisation of wide-necked aneurisms during coiling. Developments to this design have been suggested to improve performance for clot removal and this thesis investigates the performance of the Embolus Retriever with Interlinked Cages (ERIC) device by comparing with the performance of classic stent-retrievers.

Results presented in this thesis suggest that carotid stenting in acute ischaemic stroke performs reasonable compared to benchmarks from the recent randomised thrombectomy trials. Although clinical outcomes were good there may be an increased risk of symptomatic haemorrhagic complications. Currently, no randomised controlled trials on carotid stenting in acute stroke management exist. However, several observational studies suggest reasonable safety of this intervention for clinical trials to be performed.

Furthermore, the results suggest that the novel design of the ERIC device performs at least equally compared to classic stent-retrievers and may even improve in certain procedural benchmarks.