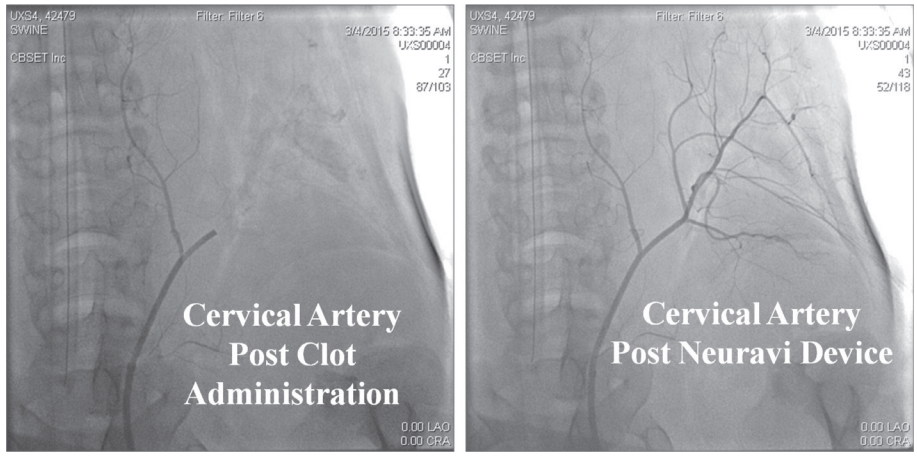


Abstract E-080 Figure 1

E-080 PRECLINICAL EVALUATION OF MECHANICAL THROMBECTOMY DEVICES IN A SWINE CLOT MODEL

[1]L Bailey, [2]M Gilvarry, [2]M Holian, [1]A Tzafriri, [3]J Stanley, **[4]E Edelman**. *[1]Applied Sciences, CBSET, Lexington, MA; [2]Neuravi Ltd., Galway, Ireland; [3]Pathology, CBSET, Lexington, MA; [4]IMES MIT, Cambridge, MA*

10.1136/neurintsurg-2016-012589.152

Background Successful recanalization (TICI $\geq$ 2b) using mechanical thrombectomy (MT) with stent retriever devices is associated with good outcomes in the treatment of ischemic stroke. Preclinical TICI flow assessement is challenging due to the difficulty of consistently occluding selected blood vessels in vivo using lab-created thrombus. We describe the development of a discrete occlusive porcine clot model for predictable and repeatable assessment of TICI flow restoration and treatment effects on the vessels at the 3 day and 28 day timepoints and following MT.

Methods Firm and soft thrombus were aged for 24–48 hours prior to injection into the peripheral arteries of eight Yorkshire pigs. Oversized clots were introduced to the target region through a guide catheter via a customized luer to minimize shear/fragmentation. Clots were allowed to stabilize in the vessel prior to treatment. Clot retrieval was performed with a novel Revascularization Device (Neuravi Ltd.) or Trevo® ProVue Retriever (Stryker Inc.) as a control. TICI flow was assessed following clot administration and after thrombectomy. Vascular response to the treatment was assessed histologically at 3 and 28 days.

Results Complete occlusion was achieved in 92% (22/24) of the targeted arteries by insertion of one (20/22) or two (2/22) pre-measured clots. Of the occluded arteries treated, TICI 3 flow restoration was achieved in all cases (100%) with the Neuravi device and 90% cases with Trevo; single pass recanalization (TICI $\geq$ 2b) rates were 92% and 80% respectively. All vessels were patent at 3 and 28 days post treatment, and histologically the prototype Neuravi revascularization device was associated with favorable local and end organ tissue responses, and was comparable to the Trevo ProVue.

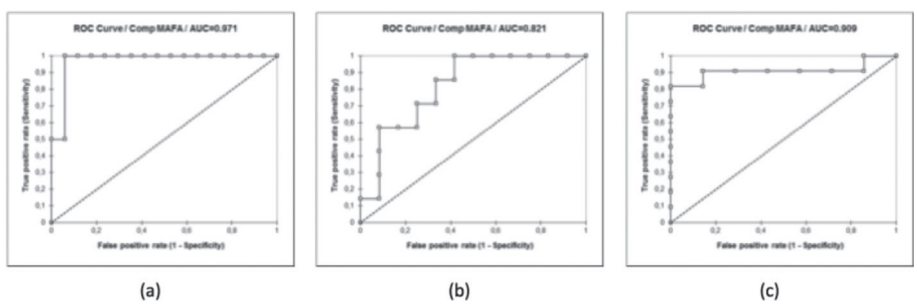
Conclusions Novel methods were developed to provide consistent thrombus morphology enabling controlled delivery and adherence and facilitating comparative analysis of thrombectomy devices using angiographic (TICI) flow assessment in the preclinical swine model. Angiographic assessments and vessel response to treatment by Mechanical Thrombectomy were successfully completed following occlusion with firm and soft thrombus administration.

Disclosures L. Bailey: 1; C; Neuravi Ltd. **M. Gilvarry:** 5; C; Neuravi Ltd. **M. Holian:** 5; C; Neuravi Ltd. **A. Tzafriri:** 1; C; Neuravi Ltd. **J. Stanley:** 1; C; Neuravi Ltd.. **E. Edelman:** None.

E-081 ASSESSMENT OF THE MAFA RATIO AS A QUANTITATIVE PROGNOSTIC MARKER OF ANEURYSM OCCLUSION AFTER FLOW DIVERTER TREATMENT

[1]V Mendes Pereira, [1]O Brina, [1]J Bracken, [1]T Krings, [2]K Lovblad, [3]F van Nijnatten, [4]D Ruijters, [4]T Grünhagen. *[1]Division of Neuroradiology – Joint Department of Medical Imaging Division of Neurosurgery – Departme, University of Toronto, Toronto, ON, Canada; [2]Division of Neuroradiology – Joint Department of Medical Imaging Division of Neurosurgery – Departme, University of Geneva, Geneva, Switzerland; [3]Division of Neuroradiology – Joint Department of Medical Imaging Division of Neurosurgery – Departme, Philips, Best, Netherlands; [4]IR, Philips Healthcare, Best, Netherlands*

10.1136/neurintsurg-2016-012589.153



Abstract E-081 Figure 1