and injection parameters as input. Thus, as opposed to traditional methods, the Reflux method inherently relies on, and is robust against, these hemodynamic disturbances. Refinement of the technique is needed to improve the accuracy and precision for clinical use.

REFERENCES

Disclosures S. Marfoglio: 5; C; Vascular Simulations, Inc. 6; C; Vascular Simulations Inc. B. Kovarovic: None. D. Fiorella: 4; C; Vascular Simulations Inc. C. Sadasivan: 2; C; Vascular Simulations Inc. 4; C; Vascular Simulations Inc. 6; C; Vascular Simulations Inc.

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volumes of the core infarct and ischemic penumbra. These imaging derived volumes together with clinical neurological symptom severity are the parameters driving the decision for endovascular therapy in the 6–24 hour time window for large vessel occlusion. As per current AHA guidelines no consideration is taken for the eloquence of the tissue at risk.

Here we show an original machine learning method using perfusion MRI for predicting the expected motor improvement of reperfusing the tissue at risk in acute stroke. The ISLES 2015 data set which included diffusion and perfusion MRI as well as expert delineated core infarct and ischemic penumbra in 30 patients with acute stroke was used to train a Convolutional Neural Network model. The model output label maps indicating core infarct and ischemic penumbra. These maps were subsequently transformed into standard MNI space and overlaid onto a probabilistic map of motor regions. Percent overlap with primary motor, premotor and supplementary motor areas were calculated for the core infarct and ischemic penumbra. External technical performance was evaluated using clinical acute stroke MRI exams from our institution. The model derived volumes closely resembled those of the commercial RAPID software for these patients. Visual examination of the standard MNI space maps showed good anatomical alignment and correspondance of the motor areas. A software prototype generating an automatic report was developed (figure 1).

The results show good technical performance of the Convolutional Neural Network model on acute stroke MRI on an independent data set. The degree of core infarcts and penumbra involvement of anatomical motor areas could be rapidly calculated using regular commercial computer hardware. Further investigation with a prospective clinical study is required for testing the clinical efficacy and possible improvement in clinical outcome prediction using the model.

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E-164 INTRAPROCEDURAL MRI DURING ACUTE ISCHEMIC STROKE INTERVENTION CAN GUIDE DECISION FOR INTRACRANIAL STENTING

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Introduction Intracranial atherosclerotic disease (ICAD) is sometimes discovered during mechanical thrombectomy for acute ischemic stroke. In the event of partial or failed recanalization, termination of the procedure is typically determined by interpretation of the angiogram. Although some retrospective studies have suggested that rescue intracranial stenting is safe and effective in this setting, others have suggested that intracranial stenting may increase risk of intracranial hemorrhage. In difficult cases that result in partial or failed recanalization, MRI would be helpful to definitively discriminate viable from infarcted cerebral tissue and determine operative course.

Methods We performed a retrospective single institution review of all acute stroke patients who underwent thrombectomy and intraprocedural MRI. From October 2019 to March 2020, eight patients underwent intraprocedural 3 Tesla MRI during mechanical thrombectomy for acute ischemic stroke intervention in a hybrid angiography-MRI suite. Diffusion-weighted (DWI; b-value=1000 s/mm²) and T2-weighted sequences were obtained. The electronic medical record was reviewed to determine clinical outcomes.

Results In all cases, the intraprocedural MRI was obtained to determine the extent of core infarct, and played a pivotal role in decision-making. In particular, operators used the MRI to make decisions regarding intracranial stent placement, administration of antplatelet medications or heparin, and blood pressure parameters. In four patients who underwent partial recanalization (TICI 2a or less), intracranial stents were placed in 2 based on MRI results. In the remaining patients, MRI informed the time course for postoperative initiation of anticoagulant medications and blood pressure parameters.