

EV351 / #1877

EXTERNAL VALIDATION OF ISCVT-RS, CVT-GS, AND IN-REvASC SCALES TO PREDICT 6-MONTH FUNCTIONAL OUTCOME USING THE CLOT-VENUS REGISTRY

OUTCOMES

N. Abdelhakim<sup>1</sup>, M. Galecio-Castillo<sup>1</sup>, L. Cruz-Criollo<sup>1</sup>, A. Rodriguez-Calienes<sup>1</sup>, A. Brito<sup>1</sup>, J. Lefkowitz<sup>1</sup>, J. Cespedes<sup>1</sup>, A. Shaban<sup>1</sup>, M. Barboza<sup>2</sup>, V. Cano Nigenda<sup>3</sup>, A. Alberto Mercado Pompa<sup>3</sup>, A. Pereda-Castillo<sup>3</sup>, A. Arauz<sup>3</sup>, S. Ortega-Gutierrez<sup>4</sup>

<sup>1</sup>University of Iowa Hospitals and Clinics, Neurology, Iowa City, United States of America, <sup>2</sup>Hospital Dr. Rafael A. Calderón Guardia, CCSS, Department Of Neurosciences, San Jose, Costa Rica, <sup>3</sup>Instituto Nacional de Neurologia y Neurocirugía, Manuel Velasco Suárez, Stroke Clinic, Mexico, Mexico, <sup>4</sup>University of Iowa Health Care, Department Of Neurology, Neurosurgery & Radiology, Iowa City, United States of America

**Background and Aims:** Cerebral venous thrombosis (CVT) is a rare but potentially life-threatening condition, disproportionately affecting younger women of reproductive age. Despite anticoagulation, up to 20% of patients experience significant long-term disability or death, particularly during the acute phase. Early identification of high-risk patients is crucial; however, external validation of prognostic models identifying high-risk patients remains limited. This study aimed to validate three scoring systems—ISCVT-RS, CVT-GS, and IN-REvASC—using data from the CLOT-VENUS registry.

**Methods:** This sub-study utilized data from CLOT-VENUS (CoLabORation on Cerebral VENous Thrombosis Study), a multicenter registry including consecutive CVT cases (2004–2024) from two tertiary stroke centers in the U.S. and Mexico. Model performance for predicting poor 6-month functional outcomes (mRS>2) was assessed using logistic regression, AUC, and C-statistics. Calibration and accuracy were evaluated with Hosmer-Lemeshow and Brier scores.

**Results:** Among 394 patients (mean age 42.7; 34.5% male; 63.3% White; 31.9% Hispanic), 30.2% had intracerebral hemorrhage, and 34 (8.6%) had malignancy. IN-REvASC showed the highest discrimination (AUC = 0.764) but low sensitivity (31.1%). CVT-GS demonstrated the best specificity (97%) and balanced performance (AUC = 0.737, NPV = 83%). ISCVT-RS showed consistent overall performance (AUC = 0.748, sensitivity = 48.2%, specificity = 81.4%). Calibration was suboptimal for predictive models but acceptable for CVT-GS (p = 0.98) and IN-REvASC

Table 1. Predictive power of the predictive models and the risk scores in CLOT-VENUS registry

Sample	AUC	Sensitivity	Specificity	PPV	NPV	Calibration (H-L p-value)	Accuracy (Brier score)
<b>Predictive model</b>							
ISCVT-RS	0.711	0.373	0.895	0.373	0.895	0.000	0.1086
CVT-GS	0.737	0.515	0.750	0.395	0.830	0.000	0.1028
IN-REvASC	0.764	0.311	0.907	0.412	0.863	0.007	0.1229
<b>Risk Scores</b>							
ISCVT-RS (≥3)	0.748	0.482	0.814	0.300	0.905	0.1856	0.1086
CVT-GS (≥8)	0.776	0.214	0.970	0.545	0.882	0.9838	0.1028
CVT-GS (≥3)	0.776	0.714	0.722	0.299	0.938	0.9838	0.1028
IN-REvASC (≥20)	0.760	0.022	0.991	0.333	0.837	0.3802	0.1229
IN-REvASC (≥10)	0.760	0.489	0.829	0.361	0.892	0.3802	0.1229

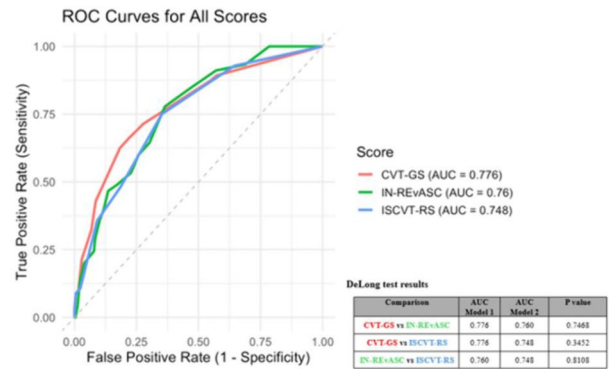
AUC: Area Under the Curve; PPV: Positive Predictive Value; NPV: Negative Predictive Value; H-L p-value: Hosmer-Lemeshow p-value; ISCVT-RS: International Study on Cerebral Vein and Dural Sinus Thrombosis Risk Score; CVT-GS: Cerebral Venous Thrombosis Grading Scale; IN-REvASC: IN-hospital REcanalization After Sinus or Cerebral Vein Thrombosis.

Table 2. Optimal Cutoffs for Each Score Based on Youden's Index

Score	Optimal Cutoff	Sensitivity	Specificity	PPV	NPV	AUC
CVT-GS	4	0.661	0.781	0.333	0.933	0.776
IN-REvASC	6	0.778	0.636	0.297	0.935	0.760
ISCVT-RS	2	0.750	0.648	0.261	0.940	0.748

AUC: Area Under the Curve; PPV: Positive Predictive Value; NPV: Negative Predictive Value; ISCVT-RS: International Study on Cerebral Vein and Dural Sinus Thrombosis Risk Score; CVT-GS: Cerebral Venous Thrombosis Grading Scale; IN-REvASC: IN-hospital REcanalization After Sinus or Cerebral Vein Thrombosis.

Figure 1. ROC curves for all risk scores in our registry with DeLong test results



AUC: Area Under the Curve; ISCVT-RS: International Study on Cerebral Vein and Dural Sinus Thrombosis Risk Score; CVT-GS: Cerebral Venous Thrombosis Grading Scale; IN-REvASC: IN-hospital REcanalization After Sinus or Cerebral Vein Thrombosis.

(p = 0.38). Cutoff optimization using Youden's Index did not improve predictive performance.

**Conclusions:** While IN-REvASC demonstrated high discrimination ability and CVT-GS had excellent specificity, none of the models achieved both. A more accurate and externally validated tool is needed to improve prognostication in diverse CVT populations.

EV352 / #2524

CLASSIFYING STROKE RECOVERY PROFILES BASED ON LIVING ENVIRONMENT: A LATENT CLASS ANALYSIS

OUTCOMES

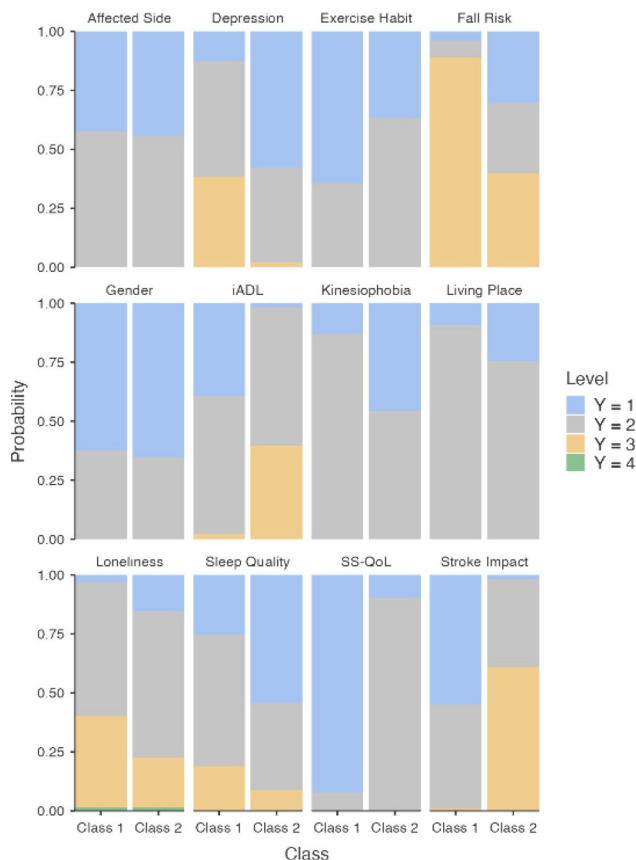
M. Ozgun<sup>1,2</sup>, O. Akanyeti<sup>3</sup>, F. Villagra Povina<sup>3</sup>, R. Rahman<sup>4</sup>, H. Saybasili<sup>2</sup>, D. Atalar<sup>5</sup>

<sup>1</sup>Istanbul Health and Technology University, Physiotherapy And Rehabilitation, Istanbul, Turkey, <sup>2</sup>Bogazici University, Institute Of Biomedical Engineering, Istanbul, Turkey, <sup>3</sup>Aberystwyth University, Department Of Computer Science, Ceredigion, United Kingdom, <sup>4</sup>Aberystwyth University, Department Of Psychology, Ceredigion, United Kingdom, <sup>5</sup>Eastern Mediterranean University, Department Of Psychology, North Cyprus, Cyprus

**Background and Aims:** Post-stroke recovery is influenced by multiple factors including living environment. While skilled nursing homes may offer more comprehensive care, including physiotherapy, dietary support, and psychological counseling, many family caregivers remain concerned that such settings may lead to loneliness and a sense of abandonment in stroke survivors, which may negatively impact their recovery. This study investigates how different living environments influence functional and psychological outcomes.

**Methods:** A total of 278 stroke survivors living either in their homes or nursing homes in Istanbul, Turkey were assessed. Patient outcomes were evaluated using Stroke Impact Scale, Stroke Specific Quality of Life Scale, Tampa Scale for Kinesiophobia, Geriatric Depression Scale, UCLA-Loneliness Scale, and Tinetti Gait and Balance Test. Covariates included age, stroke years, education, medical history, treatments received and caregiver support.

**Results:** Latent Class Analysis identified two distinct patient class, as shown in figure. Class 2 demonstrated significantly better outcomes characterized by greater independence, improved quality of life, lower depression and loneliness scores, reduced kinesiophobia, lower fall risk, healthier exercise routines and sleep quality. While the overall sample included more individuals receiving home care, the class which exhibited better functional and psychological outcomes contained a higher proportion of nursing home residents.



**Conclusions:** These results reject the hypothesis that home living patients with family support would feel less lonely and exhibit better outcomes than those living in nursing homes. Our study highlights the importance of comprehensive, multifactorial investigations into stroke recovery trajectories and underscores the role of structured rehabilitation and medical support in promoting meaningful functional and psychological outcomes.

### EV353 / #1774

#### THE INFLUENCE OF CAROTID PLAQUE MORPHOLOGY ON ISCHEMIC STROKE SEVERITY AND PATIENT OUTCOMES

##### OUTCOMES

**D. Pakizer, K. Stejskalíková, D. Šalounová, D. Školoudík**  
Faculty of Medicine, University of Ostrava, Centre For Health Research,  
Department Of Clinical Neurosciences, Ostrava, Czech Republic

**Background and Aims:** Extracranial carotid artery atherosclerosis is responsible for approximately one-quarter of all ischemic strokes. In addition to carotid stenosis degree, plaque composition is important risk factor for embolization and stroke. Different plaque compositions might have various impacts on stroke severity and patient outcomes. We aimed to investigate association between carotid plaque morphology detected by computed tomography (CT) and stroke severity in symptomatic patients.

**Methods:** The study included all patients hospitalized at single comprehensive stroke center in 2022 due to clinical stroke symptoms. Carotid plaque composition was assessed using CT (unstable/stable/acute occlusions) and stroke severity using the Alberta Stroke Program Early CT Score (ASPECTS; upon arrival&at 24hours), the National Institutes of Health Stroke Scale (NIHSS; upon arrival&at 24hours), and the modified Rankin Scale (mRS; at discharge&after 3months). Changes in patient status over time were analyzed using Wilcoxon test, and changes between plaque groups using  $\chi^2$  test.

**Results:** Of the 382 patients, 78 were analyzed (31 stable/35 unstable plaques/12 acute occlusions). When analyzing early radiological changes, there was no significant difference between the three studied plaque types ( $p>0.05$ ), while when monitoring early neurological changes (NIHSS), significant decrease in deficit was noted in stable ( $p=0.012$ ) and unstable ( $p<0.001$ ) plaques. A significant decrease in all groups was noted in late clinical changes (mRS, always  $p<0.001$ ). However, no significant difference was found between studied plaque types and stroke severity ( $p>0.05$ ).

**Conclusions:** No significant association was found between carotid plaque morphology detected on CT and early/late stroke severity in carotid territory. Patients with stable plaques showed milder events and had better overall 3-month outcome.

### EV354 / #1324

#### LONG-TERM SURVIVAL AFTER DECOMPRESSIVE CRANIECTOMY FOR ALL-CAUSE STROKE- A 5 YEAR PROSPECTIVE STUDY

##### OUTCOMES

**S. Panda<sup>1</sup>, S. Mehra<sup>1</sup>, M. Garg<sup>2</sup>, B. Suryanarayan<sup>2</sup>, A. Rohilla<sup>3</sup>, N. Midha<sup>3</sup>, S. Tiwari<sup>4</sup>, P. Khera<sup>4</sup>**

<sup>1</sup>All India Institute of Medical Sciences, Neurology, Jodhpur, India, <sup>2</sup>All India Institute of Medical Sciences, Neurosurgery, Jodhpur, India, <sup>3</sup>All India Institute of Medical Sciences, Internal Medicine, Jodhpur, India, <sup>4</sup>All India Institute of Medical Sciences, Radiology, Jodhpur, India

**Background and Aims:** Decompressive craniectomy (DC) for malignant strokes is an emergency lifesaving procedure with reduction in immediate mortality. However, long-term mortality and functional outcomes are not well documented.

**Methods:** This prospective observational study was conducted as part of National Stroke Registry from January 2020 till April 2025 in 167 consecutive patients undergoing DC for acute stroke. Ninety-nine patients (59.3%) had acute ischemic stroke (AIS), 56 (33.5%) intracerebral haemorrhage (ICH) and 12 (7.2%) venous stroke. Death and disability at discharge, 1 month, 3 months and upto 5 years after onset of stroke was assessed and compared across stroke types. Disability was assessed using modified Rankin scale (mRS).

**Results:** Mean duration of ictus to door was  $15.96 \pm 26.54$  hours ( $11.99 \pm 23.36$  in ICH;  $p 0.022$ ). Mean NIHSS at admission was  $14.75 \pm 8.68$ , highest for ICH ( $15.36 \pm 13.07$ ). Likewise, duration from ictus to DC was  $41.55 \pm 29.61$ , shortest for ICH ( $32.64 \pm 21.27$ ) ( $p 0.009$ ). Mortality among all patients undergoing DC was 25.7% at discharge, 28.1% at 1 month, 31.7% at 3 months and 52.3% at last follow up ( $30.05 \pm 16.6$  months). Though definite cause of death on follow-up was unclear, only 3 had recurrent stroke indicating deaths were attributable to non-neurologic factors. Good long-term outcome (mRS $\leq 3$ ) was noted in 36%. Post stroke mRS $>3$  at 3 month and ICH at onset was associated with long-term mortality.

**Conclusions:** Significant long-term disability and high mortality specially in ICH contributes to burden of care. However, good outcome in a third patients specially in non-ICH strokes boosts our current knowledge on role of DC for improving outcomes in malignant strokes.

### EV355 / #617

#### CEREBROLYSIN IN LATERAL MEDULLA INFARCTION FROM VERTEBRAL ARTERY DISSECTION: A PILOT RETROSPECTIVE ANALYSIS

##### OUTCOMES

**K. Park**

Wiltse memorial hospital, Suwon, Korea, Republic of