

Baptist Health South Florida

## Scholarly Commons @ Baptist Health South Florida

---

All Publications

---

2-2020

### Optimal Early Clinical Endpoints for Long-Term Functional Outcome Prediction After Thrombectomy

Felipe De Los Rios La Rosa

*Baptist Hospital of Miami; Miami Neuroscience Institute, felipedl@baptisthealth.net*

Amy Starosciak

*Baptist Health South Florida, amyst@baptisthealth.net*

Follow this and additional works at: <https://scholarlycommons.baptisthealth.net/se-all-publications>

---

#### Citation

De Los Rios La Rosa, Felipe and Starosciak, Amy, "Optimal Early Clinical Endpoints for Long-Term Functional Outcome Prediction After Thrombectomy" (2020). *All Publications*. 3451.

<https://scholarlycommons.baptisthealth.net/se-all-publications/3451>

This Conference Poster -- Open Access is brought to you for free and open access by Scholarly Commons @ Baptist Health South Florida. It has been accepted for inclusion in All Publications by an authorized administrator of Scholarly Commons @ Baptist Health South Florida. For more information, please contact [Carrief@baptisthealth.net](mailto:Carrief@baptisthealth.net).

Eva Mistry, MBBS;<sup>1</sup> Sharon Yeatts, PhD;<sup>1</sup> Akshitkumar Mistry, MD;<sup>1</sup> Tapan Mehta, MBBS;<sup>3</sup> Niraj Arora, MBBS;<sup>4</sup> Felipe De Los Rios La Rosa, MD;<sup>5</sup> Amy K. Starosciak, PhD;<sup>5</sup> James E. Siegler, III, MD;<sup>6</sup> Katarina Dakay, DO;<sup>7</sup> Rohan Chitale, MD;<sup>1</sup> Shadi Yaghi, MD;<sup>8</sup> Pooja Khatri, MD MSc<sup>9</sup>

<sup>1</sup>Vanderbilt University Med Ctr, Nashville, TN, <sup>2</sup>Medical Univ of South Carolina, Charleston, SC, <sup>3</sup>Univ of Minnesota Med Ctr, Minneapolis, MN, <sup>4</sup>Jackson Memorial Hosp, Miami, FL, <sup>5</sup>Baptist Health Neuroscience Ctr, Miami, FL, <sup>6</sup>Hosp of the Univ of Pennsylvania, Philadelphia, PA, <sup>7</sup>Brown Univ, Providence, RI, <sup>8</sup>NYU Langone Health, Brooklyn, NY, <sup>9</sup>Univ Of Cincinnati, Cincinnati, OH

## Introduction

Early neurological recovery (ENR) is an attractive surrogate marker for long-term functional outcome of endovascularly-treated stroke patients.

The optimal definition of 24-hour ENR that best predicts 90-day functional independence (modified Rankin Scale, mRS, 0-2) has not been established. We sought to determine ENR measure that best predicted 90-day mRS 0-2 in our prospective, multi-center, “Blood Pressure after Endovascular Stroke Therapy (BEST)” study.

## Methods and Materials

BEST enrolled consecutive EVT-treated adult patients with ICA, M1, or M2 occlusions at 12 comprehensive stroke centers from 11/2017 to 9/2018. In this post-hoc analysis, we measured the ability of various thresholds of both 24-hour NIHSS and  $\Delta$ NIHSS (baseline minus 24-hour) to predict 90-day mRS 0-2 using Youden’s index.

The strength of the associations were assessed using logistic regression adjusted for age, glucose, hypertension, ASPECT score, time to recanalization, recanalization status, and thrombolytic treatment.

## Results

Of 485 patients in the BEST cohort, 447 with 90-day follow-up were included in this study (228 females, mean age 68  $\pm$ 15 years).

The optimal Youden’s Index was achieved at 24 hour NIHSS of  $\leq 7$  (sensitivity 80.1%, specificity 80.4%, area under the curve [AUC] 0.855 [0.819-0.887],  $p < 0.001$ ).

## Results

The optimal  $\Delta$ NIHSS cut point was  $\geq 4$  (sensitivity 79%, specificity 58.5%, AUC 0.73 [0.685-0.77],  $p < 0.001$ ; Figure), which performed less well at outcome prediction than 24 hour NIHSS (difference between the AUCs 0.126,  $p < 0.001$ ; Figure). Strength of association between other early NIHSS endpoints and 90-day outcome is outlined in the table

## Conclusions

A 24-hour NIHSS  $\leq 7$  best predicted functional independence at 90 days. Among  $\Delta$ NIHSS thresholds,  $\geq 4$  points (decrease) was optimal.

These findings should be validated in independent endovascular cohorts to establish a standard short-term outcome measure for both clinical and research scenarios.

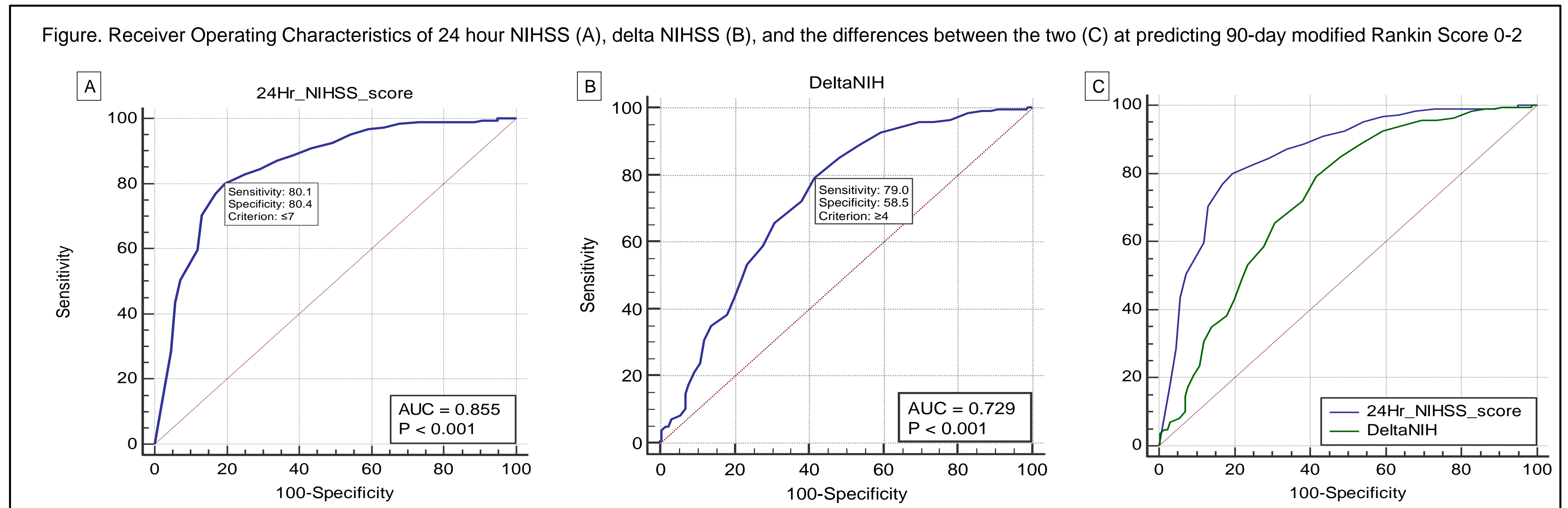


Table. Association of Various thresholds of 24-hour NIHSS and  $\Delta$ NIHSS with 90-day Modified Rankin Scale 0-2

Definitions	Unadjusted OR	p-value	Adjusted OR	p-value	Sensitivity	Specificity
24-hour NIHSS as continuous	1.27 [1.22-1.33]	<0.001	1.26 [1.20-1.33]	<0.001	NA	NA
24-hour NIHSS $\leq 2$	12.5 [7.14-25]	<0.001	7.69 [4.16-16.67]	<0.001	43.55%	94.23%
24-hour NIHSS $\leq 7$	16.67 [10-25]	<0.001	12.5 [7.14-20]	<0.001	80.1%	80.4%
$\Delta$ NIHSS as continuous	1.11[1.07-1.13]	<0.001	1.11[1.07-1.14]	<0.001	NA	NA
$\Delta$ NIHSS $\geq 2$	6.67 [4.16-11.1]	<0.001	10 [5.26-20]	<0.001	88.7%	46.5%
$\Delta$ NIHSS $\geq 4$	5.27 [3.44-8.33]	<0.001	4.55[2.85-7.69]	<0.001	79%	58.5%
$\Delta$ NIHSS $\geq 8$	3.7[2.5-5.56]	<0.001	3.33[2.12-5.26]	<0.001	53.2%	76.5%

## Contact

Eva Mistry, MBBS  
 Assistant Professor  
 Department of Neurology  
 Vanderbilt University Medical Center  
 Email: eva.a.mistry@vumc.org