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**Association Between Pre-stroke Depression And Patient Reported Outcomes After Acute Ischemic Stroke**

**Author Information:** Shreyansh Shah, Duke Univ, Durham, NC; Haolin Xu, Duke Clinical Res Inst, Durham, NC; Ying Xian, Duke Univ, Durham, NC; Lesley Maisch, Patient Investigator, Amherst, NY; Deidre Hannah, Patient Investigator, Richland Hills, TX; Brianna Lindholm, Patient Investigator, Frisco, TX; Barbara L. Lytle, Michael J. Pencina, Duke Clinical Res Inst, Durham, NC; DaiWai M. Olson, Univ of Texas Southwestern Medical Ctr, Dallas, TX; Eric E. Smith, Univ of Calgary, Calgary, AB, Canada; Gregg C. Fonarow, Univ of California, Los Angeles, CA; Lee H. Schwamm, Massachusetts General Hosp, Boston, MA; Deepak L. Bhatt, Brigham and Women's Hosp, Boston, MA; Adrian F. Hernandez, Emily C. O'Brien, Duke Univ, Durham, NC

**Abstract:**

**BACKGROUND:**

Post-stroke depression has been shown to have a negative impact on patients' quality of life but data regarding the relationship between pre-stroke depression and post-stroke outcomes are lacking.

**METHODS:**

Patient reported outcome measures (PROMS) were prospectively collected (January 2014 – December 2014) as a part of PROSPER, a PCORI-funded study designed by researchers and stroke survivors to evaluate the effectiveness of therapies post-stroke. PROMS evaluated in the study included modified Rankin Scale (mRS) assessed at discharge, 3 months and 6 months post-discharge. EuroQual-5D-3L (EQ-5D-3L), EuroQual Visual Analog Scale (EQ-VAS), Patient Health Questionnaire-2 (PHQ-2), Stroke Impact Scale-16 (SIS-16), and Fatigue Severity Scale (FSS) were assessed at 3 months and 6 months post-discharge. Pre-stroke depression was identified from patient medical history. Validated dichotomized endpoints were used to create regression models to examine association of pre-stroke depression with PROMS.

**RESULTS:**

Of 1,617 enrolled patients at 60 hospitals, 185 (11.4%) had pre-stroke depression. Patients with documented pre-stroke depression were more likely to be white, female and have a higher prevalence of cardiovascular risk factors than those without pre-stroke depression. While both cohorts had similar stroke severity and functional status at discharge, patients with pre-stroke

depression had significantly worse PROMS at 3 months and 6 months post-discharge. Pre-stroke depression was associated with 56% higher odds of functional decline between 3 months and 6 months post-discharge with greater negative impact of stroke on patient's health and life, and with increased likelihood of reporting severe fatigue during stroke recovery (Table 1).

### CONCLUSIONS:

Pre-stroke depression is associated with worse patient reported outcomes and greater odds of functional decline after ischemic stroke discharge. Strategies to more effectively manage comorbid depression and improve outcomes in these patients are needed.

Dichotomized Patient Reported Outcomes	Pre-Stroke Depression (N=185)	No Pre-Stroke Depression (N=1,432)	Adjusted Ratio* (95% Confidence Interval)	NIHSS Adjusted Ratio† (95% Confidence Interval)
mRS 0-1 at 3 months	32.2%	39.1%	0.81 (0.57-1.16)	0.79 (0.55, 1.14)
mRS 0-1 at 6 month	31.2%	42.8%	0.66 (0.46-0.95)	0.64 (0.44, 0.93)
Functional decline (mRS at 6 mo > mRS at 3mo)	25.6%	19.0%	1.56 (1.00-2.42)	1.67 (1.07, 2.60)
PHQ-2 >=3 at 3 months	36.7%	16.3%	2.68 (1.77-4.06)	2.79 (1.84, 4.24)
PHQ-2 >=3 at 6 months	34.7%	13.2%	2.9 (1.93-4.37)	3.10 (2.05, 4.69)
SIS-16=100 at 3 months	17.2%	30.0%	0.64 (0.39-1.04)	0.62 (0.37, 1.02)
SIS-16=100 at 6 months	15.0%	30.7%	0.44 (0.26-0.76)	0.40 (0.23, 0.70)
FSS >=36 at 3 months	71.9%	50.1%	2.48 (1.67-3.70)	2.51 (1.67, 3.78)
FSS >=36 at 6 months	69.9%	46.9%	2.31 (1.55-3.45)	2.44 (1.62, 3.69)

\*Covariates used for adjustment: patient demographics, medical history, insurance status, ambulatory status prior to admission, on-time arrival and hospital characteristics  
† Additional covariate used for adjustment: Initial NIHSS

mRS: modified Rankin Scale  
PHQ-2: Patient Health Questionnaire-2  
SIS-16: Stroke Impact Scale-16  
FSS: Fatigue Severity Scale

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### Author Disclosure Information:

**S. Shah:** None. **H. Xu:** None. **Y. Xian:** B. Research Grant; Modest; AHA. **L. Maisch:** None. **D. Hannah:** None. **B. Lindholm:** None. **B.L. Lytle:** None. **M.J. Pencina:** G. Consultant/Advisory Board; Modest; DSMB membership for Corvia Medical, Theracos, and Cardiovascular Sciences Foundation. **D.M. Olson:** None. **E.E. Smith:** None. **G.C. Fonarow:** B. Research Grant; Modest; PCORI. G. Consultant/Advisory Board; Modest; Janssen, Medtronic, St Jude Medical, AHA GWTG Steering Committee. **L.H. Schwamm:** B. Research Grant; Modest; National Institute of Neurological Disorders and Stroke. G. Consultant/Advisory Board; Modest; Massachusetts Department of Public Health, Lundbeck, Penumbra, Medtronic. **D.L. Bhatt:** B. Research Grant; Modest; Amarin, Amgen, AstraZeneca, Bristol-Myers Squibb, Chiesi, Eisai, Ethicon, Forest Laboratories, Ironwood, Ischemix, Lilly, Medtronic, Pfizer, Roche, Sanofi Aventis, The Medicines Company. **A.F. Hernandez:** B. Research Grant; Modest; PCORI. **E.C. O'Brien:** None.

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