Mexican Americans are Less Likely to Return to Work Following Stroke: Clinical and Policy Implications

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Background: Greater poststroke disability and U.S. employment policies may disadvantage minority stroke survivors from returning to work. We explored ethnic differences in return to work among Mexican Americans (MAs) and non-Hispanic whites (NHWs) working at the time of their stroke. *Methods:* Stroke patients were identified from the population-based BASIC (Brain Attack Surveillance in Corpus Christi) study from August 2011 to December 2013. Employment status was obtained at baseline and 90-day interviews. Sequential logistic regression models were built to assess ethnic differences in return to work after accounting for the following: (1) age (<65 versus ≥65); (2) sex; (3) 90-day National Institutes of Health Stroke Scale (NIHSS); and (4) education (lower than high school versus high school or higher). *Results:* Of the 729 MA and NHW stroke survivors who completed the baseline interview, 197 (27%) were working at the time of their stroke, of which 125 (63%) completed the 90-day outcome interview. Forty-nine (40%) stroke survivors returned to work by 90 days. MAs were less likely to return to work (OR = .45, 95% CI .22-.94) than NHWs. The ethnic difference became nonsignificant after adjusting for NIHSS (OR = .59, 95% CI .24-1.44) and further attenuated after adjusting for education (OR = .85, 95% CI .32- 2.22). *Conclusions:* The majority of stroke survivors did not return to work within 90 days of their stroke. MA stroke survivors were less likely to return to work after stroke than NHW stroke survivors which was due to their greater neurological deficits and lower educational attainment compared with that of NHW stroke survivors. Future work should focus on clinical and policy efforts to reduce ethnic disparities in return to work. **Key Words:** Stroke—disparities—survivorship—ethnicity.

While overall stroke incidence has declined, stroke incidence in the working age population has remained stable.[1,2] Working age stroke survivors face unique challenges compared to the retirement age population, most notably employment and the accompanying health insurance, as well as family responsibilities such as caring for children and aging parents. Not surprisingly, return to work is highly important to working age stroke survivors and contributes to their life satisfaction and subjective well-being.[3-5] In the United States, lost earnings are the largest driver of the projected $2.2 trillion in stroke costs over the next 4 decades, suggesting a high societal importance of stroke survivors returning to work.[6]

Americans rely less on government social spending and more heavily on employers and tax subsidies compared to other wealthy democratic industrialized countries.[7] Therefore, events such as stroke that can change the course

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Received January 6, 2016; revision received March 4, 2016; accepted March 12, 2016.

Funding: This study was funded by NIH grant R01NS38916 and K23 NS073685 (Skolarus).

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1052-3057/$ - see front matter

http://dx.doi.org/10.1016/j.jstrokecerebrovasdis.2016.03.015

of employment have widespread ramifications for stroke survivors and their families as well as society. These ramifications may be even more pronounced among Mexican Americans (MAs) who are younger at the time of their stroke and have more poststroke disability than non-Hispanic whites (NHWs).[2,8] Furthermore, our previous work has shown that MA stroke patients have lower income, and thus unemployment following stroke may have greater financial implications than for NHWs.[9]

Despite the fact that return to work is important to society and to stroke survivors and their families, previous research exploring return to work among stroke survivors has been limited by selection bias, including a focus on patients in rehabilitation, which likely differ in their frequency of returning to work,[10] and variable time to follow-up ranging from 90 days to 27 years by which time other events may have occurred which impact return to work.[11,12] In a population-based stroke surveillance study, we compared the proportion of stroke survivors who returned to work within 90 days following their stroke by ethnicity and investigated the role of sociodemographic factors and stroke severity in this association. We also explored the economic consequences of stroke among stroke survivors who were working at the time of their stroke overall and by ethnicity.

Methods

The BASIC (Brain Attack Surveillance in Corpus Christi) project is a population-based stroke surveillance study in Nueces County. Nueces County, located in South Texas, is a predominantly urban, biethnic community. The population comprises 340,000 residents and is predominately MA (62%); 32% of the population comprises NHWs.[13] All stroke cases in patients aged more than 44 years are ascertained by both active and passive surveillance methods.[2] All suspected strokes are validated by a neurologist or stroke fellowship-trained emergency medicine physician blinded to race or ethnicity and age using source documentation. This study includes stroke patients who were identified between August 2011 and December 2013 and were employed at the time of their stroke. All patients with a validated stroke were invited to participate in a baseline interview and medical record abstraction, as well as an outcome interview conducted about 90 days after the stroke.

Variables

Return to Work

Stroke patient's paid employment status, whether full time or part time, was ascertained at the baseline interview. Return to work status and whether at the same paid job were obtained at the 90-day poststroke interview for patients working at the time of their stroke. At the 90-day interview, the family's ability to pay for all of their expenses since the stroke (less than adequate, adequate, more than adequate) and anticipated change in family's yearly income after the stroke (decreased, remained about the same, increased) were queried.

Ethnicity

Ethnicity defined as MA or NHW was taken from the baseline interview. We excluded other ethnicities because of their small numbers which would preclude comparisons.

Other covariates

Variables were abstracted from the medical record by trained abstractors. These included demographics (age, sex) and medical comorbidities (prior stroke or transient ischemic attack, atrial fibrillation, hypertension, diabetes, coronary artery disease or myocardial infarction, congestive heart failure, smoking, hyperlipidemia, cancer, chronic obstructive pulmonary disease, and end-stage renal disease). Education (lower than high school, high school, some college or vocational school, college graduate) was obtained from the baseline interview. Neurological deficits were measured via the National Institutes of Health Stroke Scale (NIHSS) and ascertained from the medical record at baseline and from a certified study coordinator at the 90-day interview.[14]

Statistical Analysis

Descriptive statistics were used to compare sociodemographics, comorbidities, stroke severity, and the financial impact of stroke by ethnicity. Ethnic differences in return to work (primary outcome) were assessed using logistic regression models. Sequential models were built in the following manner adjusting for: (1) age (<65 versus ≥65); (2) sex; (3) 90-day NIHSS; and (4) educational attainment (lower than high school versus high school or higher). Analyses were performed using SAS Cary, NC, USA. This study was approved by the University of Michigan Institutional Review Board as well as the institutional review boards of the 2 hospital systems in Nueces County.

Results

There were 729 MA and NHW stroke survivors who completed the baseline interview. Of these stroke survivors, 197 (27%) were working at the time of their stroke, of which 125 (63%) completed the 90-day outcome interview and were included in the analysis. Median age was 60 years (IQR 55-68) for MAs and 59 years (IQR 51-66) for NHWs (Table 1). There was no