Barriers to Healthcare Access and to Improvements in Health-Related Quality of Life After an Acute Coronary Syndrome (From TRACE-CORE)

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Little is known about how barriers to healthcare access affect health-related quality of life (HRQOL) after an acute coronary syndrome (ACS). In a large cohort of ACS survivors from 6 medical centers in Massachusetts and Georgia enrolled from 2011 to 2013, patients were classified as having any financial barriers, no usual source of care (USOC), or transportation barriers to healthcare based on their questionnaire survey responses. The principal study outcomes included clinically meaningful declines in generic physical and mental HRQOL and in disease-specific HRQOL from 1 to 6 months posthospital discharge. Adjusted relative risks (aRRs) for declines in HRQOL were calculated using Poisson regression models, controlling for several sociodemographic and clinical factors of prognostic importance. In 1,053 ACS survivors, 29.0% had a financial barrier, 14.2% had no USOC, and 8.7% had a transportation barrier. Patients with a financial barrier had greater risks of experiencing a decline in generic physical (aRR 1.48, 95% confidence interval [CI] 1.17, 1.86) and mental (aRR 1.36, 95% CI 1.07, 1.75) HRQOL at 6 months. Patients with 2 or more access barriers had greater risks of decline in generic physical (aRR 1.53, 95% CI 1.20, 1.93) and mental (aRR 1.50, 95% CI 1.17, 1.93) HRQOL compared with those without any healthcare barriers. There was a modest association between lacking a USOC and experiencing a decline in disease-specific HRQOL (aRR 1.46, 95% CI 0.96, 2.22). Financial and other barriers to healthcare access may be associated with clinically meaningful declines in HRQOL after hospital discharge for an ACS. **(Am J Cardiol 2018;00:1−7)**

The majority of the 1.4 million American adults who annually survive a hospitalization for an acute coronary syndrome (ACS) avoid short-term readmission to the hospital and death.[1,2] These patients, however, tend to have worse health-related quality of life (HRQOL) than the general population,[3,4] and many experience subsequent declines in HRQOL after hospital discharge for an ACS.[5] Better knowledge about changes in HRQOL after an acute coronary event may be particularly useful for patients who are determining their long-term health goals.[6] We know little about the factors that affect HRQOL after an ACS,[6] particularly with regards to the impact of healthcare access.[7] Barriers to healthcare remain common in the United States.[8,9] and these barriers may lead to poor uptake and adherence to secondary prevention therapies for coronary heart disease that could otherwise improve patient's HRQOL.[10,11] Using data from a longitudinal study of hospital survivors of an ACS,[12,13] we examined the association between several healthcare barriers with clinically meaningful changes in HRQOL during the 6 months after hospital discharge for an ACS.

Methods

In the prospective Transitions, Risks, and Actions in Coronary Events Center for Outcomes Research and Education (TRACE-CORE) cohort study,[12,13] trained research assistants (RAs) recruited a total of 2,174 adults who survived their hospitalization for an ACS at 6 medical centers in central Massachusetts and Georgia from April, 2011 to May, 2013. Eligibility criteria included being 21 years of age or older and having a confirmed ACS.[14] Trained RAs abstracted data from electronic medical records and conducted a baseline interview, either in-person during the index hospitalization or by telephone within 72 hours of discharge. Patients participated in additional telephone interviews after hospital discharge. This study received approval from the Institutional Review Boards at participating sites.

Participants with complete data on the specific barriers to healthcare, type of ACS, SF-36v2 Health Survey

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physical (PCS) and mental (MCS) component summary scores,[15] and a Seattle Angina Questionnaire Quality of Life (SAQ QOL)[16] score at 1 and 6 months after discharge, and various potentially confounding factors, comprised the analytical sample. As our principal exposure factors, we examined variables in this study that could act as enabling resources for care access.[17] These included having adequate financial resources, a usual source of care (USOC), and having transportation for obtaining medical care.

Financial barriers to healthcare included difficulty in affording care and lack of insurance at hospital discharge. At the baseline interview, participants answered 2 yes/no questions: "During the past 12 months, have you had any problems paying medical bills?" and "In the past 12 months, have you avoided obtaining any health care services because of the cost?"[18] We categorized patients responding affirmatively to either of these questions and/or lacking insurance as having a financial barrier to healthcare.

During the baseline interview, participants answered the question "Is there a place that you usually go to when you are sick or need advice about your health?" We classified patients who responded no to the first question or listing an emergency room in the second question as having no USOC.[8]

To assess the presence of transportation-related barriers to medical care, participants answered the following questions during the baseline interview: "Overall, and in terms of transportation, how difficult is it for you to get to your health care appointments?" (no problem at all, not very, somewhat, moderately, or extremely difficult) and "Within the past 12 months, have you missed a medical appointment or been unable to obtain needed health care because of problems with your transportation?". We classified patients who reported missing care or perceiving moderate to extreme difficulty in getting to their medical appointments as having a transportation barrier to accessing healthcare.

To assess generic HRQOL, participants completed the SF-36v2 Health Survey.[15] This instrument yields measures that assess overall physical and mental health, with higher scores indicating better HRQOL. We defined changes of $\geq$3.0 points as clinically meaningful decreases and/or increases in HRQOL.[19] To assess disease-specific HRQOL, we used the 3-item quality of life scale from the Seattle Angina Questionnaire (SAQ QOL).[16] The SAQ QOL is scored from 0 to 100; higher scores indicate better HRQOL. We defined changes of $\geq$16.0 points as clinically meaningful decreases and/or increases in HRQOL.[16]

Patient's self-reported race and ethnicity, level of education, household composition, employment status, and smoking status were obtained during the baseline interview. The ACS was classified as either an ST-segment elevation myocardial infarction, non-ST-segment elevation myocardial infarction, or unstable angina.[14] Our trained RAs abstracted data on patients' pre-existing medical conditions, hospital treatment practices, and we calculated Global Registry of Acute Coronary Events risk scores (2.0).[20]

During the hospitalization, we asked participants "How confident are you filling out medical forms by yourself?" on a 5-point Likert scale[21]; we categorized those responding extremely/quite a bit, somewhat, and a little bit/not at all as having high, medium, and low health literacy, respectively. We assessed cognitive status using the Telephone Interview for Cognitive Status at 1 month after hospital discharge.[22] Patients completed the Patient Activation Measure, a measure of patients' knowledge, skills, and confidence to manage their disease.[5]

We examined the baseline characteristics of participants according to the presence of a financial, USOC, or transportation-related barrier to healthcare access. We used chi-square and unpaired *t* tests to compare differences in the distributions of categorical and continuous variables, respectively, in those with and without specific healthcare barriers. We examined differences in mean HRQOL scores after hospital discharge using paired *t* tests.

Using Poisson regression models, we calculated relative risks (RR) and accompanying 95% confidence intervals (95% CIs) for experiencing a clinically meaningful decrease in HRQOL at 6 months according to the presence of patient healthcare barriers. Due to potential selection bias resulting from differential loss to follow-up, we performed our regression analyses using inverse probability weighting.[23] We first constructed a regression model that contained the 3 healthcare barriers together. We then adjusted the models for prespecified factors and additional covariates if their inclusion changed beta coefficients for the association between at least 1 barrier to healthcare access and changes in HRQOL by $\geq$10% and also adjusted for the 1-month HRQOL scores.

Results

The analytical sample consisted of 1,053 of the 2,174 original TRACE-CORE study participants. Compared with included participants, those excluded from the present study were younger, were more likely to belong to a racial or ethnic minority, have less education, be unemployed, and have strained monthly finances. Participants who were excluded from the present study, due primarily to a lack of follow-up information on HRQOL, were also more likely to have previously diagnosed heart failure, be a current smoker, not have undergone a percutaneous coronary intervention during their acute hospitalization, have a longer hospital stay, have worse health literacy, and have impaired cognition than included participants. The prevalence of financial barriers to care (38.4% vs 29.0%), lack of a USOC (19.3% vs 14.2%), and transportation barriers to healthcare access (14.4% vs 8.7%) were significantly higher in excluded participants ($p < 0.001$).

In the analytical sample, 305 (29.0%) participants had a financial barrier, 149 (14.2%) lacked a USOC, and 92 (8.7%) had a transportation barrier (Table 1). Compared with those without the healthcare barrier of interest, participants with each barrier tended to be younger, female, of a racial or ethnic minority, unemployed, and have strained monthly finances. The frequencies of chronic lung disease, current smoking status, and mildly to severely impaired cognitive status were higher in those with the specific barriers to healthcare access.

Mean PCS scores increased from 1 to 6 months after hospital discharge, from 42.4 to 44.0 points ($p < 0.001$), although 25.5% of participants experienced a clinically