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Decision-Making Preferences Among Patients With An Acute Myocardial Infarction

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TO THE EDITOR

Despite numerous calls for greater participation by patients in the medical decision-making process,^{1,2} shared decision-making is not yet integrated into routine medical care, perhaps because of a perception that patients wish to defer to their physicians. We sought to investigate preferences for participation in the decision-making process among individuals hospitalized with an acute myocardial infarction (AMI).

METHODS

We combined data from 2 similar AMI registries: Translational Research Investigating Underlying Disparities in Acute Myocardial Infarction Patients' Health Status (TRIUMPH)

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Author Contributions:

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Acquisition of data: Krumholz, Spertus

Analysis and interpretation of data: Barreto-Filho, Jones, Krumholz, Li, Spertus

Drafting of the manuscript: Krumholz

Critical revision of the manuscript for important intellectual content: Barreto-Filho, Jones, Krumholz, Li, Spertus

Statistical analysis: Jones, Li

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Study supervision: Krumholz, Spertus

Conflict of Interest Disclosure:

Dr. Krumholz chairs a cardiac scientific advisory board for UnitedHealth and is the recipient of a research grant, through Yale University, from Medtronic. Dr. Spertus has received grant support from Lilly, Genentech, and EvaHeart. He serves on a cardiac scientific advisory board for UnitedHealth, and as a consultant to Genentech, Amgen, and St. Jude Medical. He has an equity position in Health Outcomes Sciences and owns the copyright to the Seattle Angina Questionnaire, Kansas City Cardiomyopathy Questionnaire, and Peripheral Artery Questionnaire.

Data Access and Responsibility:

Mr. Jones and Dr. Li had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

and the Prospective Registry Evaluating Outcomes After Myocardial Infarctions: Events and Recovery (PREMIER). The studies, which have been previously described, had similar inclusion criteria and common enrollment sites.^{3,4} We collected, among other information, detailed data on clinical comorbidities, admission and discharge medications, presenting electrocardiogram, and treatments during the first 24 hours through chart abstraction. Trained hospital research staff administered interviews between 24 and 72 hours after admission.

We assessed patient shared decision-making preferences with the question, Given the information about risks and benefits of the possible treatments, who should decide which treatment option should be selected?.⁵ The response rate to the question was 96.6% (2,414 of 2,498) for PREMIER and 97.3% (4,222 of 4,340) for TRIUMPH. Patients responded on a 5-point Likert scale: 1=doctor alone, 2=mostly doctor, 3=doctor and you, 4=mostly you, 5=you alone. We dichotomized the response into 2 categories: passive (Likert scores 1 and 2) and active (3, 4, and 5). We compared the baseline characteristics of patients with and without a preference to be actively involved and developed a predictive model employing a hierarchical modified Poisson regression model, which adjusted for clustering at the hospital level. All tests for significance were 2-tailed with an α level of 0.05, and were conducted with SAS version 9.1.3 (SAS Institute Inc., Cary, NC) and R version 2.6.0 (Vienna, Austria).

RESULTS

Of 6,636 patients in the study sample, 4,536 (68%) desired active engagement in shared decision-making (Table). Among those, 2,735 (60.3%) indicated that the doctor and patient should participate equally, 696 (15.3%) indicated that the patient should predominantly determine the decision, and 1,105 (24.4%) said that the patient alone should determine it. For all patient characteristics, the majority (68%) preferred an active role in decision-making. Those who preferred an active role tended to be younger, but none of the age groups had less than a majority that preferred active engagement. Compared with patients who did not complete high school, patients who had a college degree and those with a graduate degree had a much greater likelihood of preferring an active approach. However, even among those with less than a high school education, 58% preferred an active style. Financial resources were not associated with preferences. In the multivariable model, we identified 7 variables with a significant and independent association with an active decision-making preference: women, white race, higher education, smoker, heart failure, lower GRACE risk score, and not undergoing PCI during the hospitalization. The discrimination of the final model was modest, with a c-statistic of 0.61.

COMMENT

More than two-thirds of AMI patients indicated a preference to play an active role in the decision-making process, and of those, about a quarter preferred that the decision be theirs alone, rather than shared with their doctor. In addition, demographic and clinical characteristics did not predict well who preferred an active role. The results of this study

highlight that a great majority of patients want to be involved in decision-making, while also showing that there is a marked minority of patients who would prefer to be passive.

While some studies used hypothetical situations to assess decision-making preferences, we directly elicited patients' preferences at the time that decisions were being made. The predictive model had limited discrimination. Our findings indicate that physicians who aspire to provide patient-centered care should assess patients' decision-making preferences by directly asking each patient.

A potential limitation of this study is the approach we used to elicit patient decision-making responses. We may have failed to capture the full scope of patient preferences, and mixed-methods studies may reveal nuances to these preferences that are not readily apparent in a fixed-response question.

Decision-making preferences vary among patients after an AMI, but many patients prefer an active style. To know a patient's preference requires a specific conversation. Our challenge now is to develop systems that fully respect these preferences and ensure that patients who prefer an active role are given that opportunity.

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Associations between patient characteristics and preferences.

Table

	<u>Desire for decision-making role</u>		P-Value
	Active (n=4536)	Passive (n=2100)	
Demographics			
Age	59.0 ± 12.5	61.0 ± 12.8	<0.001
19 - <55	1745 (72.3%)	668 (27.7%)	<0.001
55 - <65	1354 (67.3%)	659 (32.7%)	
65 - <75	843 (67.0%)	415 (33.0%)	
75 - 98	594 (62.4%)	358 (37.6%)	
Sex			0.045
Male	3002 (67.6%)	1442 (32.4%)	
Female	1534 (70.0%)	658 (30.0%)	
Race			<0.001
White/Caucasian	3247 (70.3%)	1373 (29.7%)	
Black/African American	1028 (64.1%)	575 (35.9%)	
Other	243 (62.5%)	146 (37.5%)	
Unknown	18	6	
Social and economic factors			
Married			0.785
Yes	2446 (68.5%)	1123 (31.5%)	
No	2076 (68.2%)	967 (31.8%)	
Missing	14	10	
Education			<0.001
Less than high school	794 (57.5%)	588 (42.5%)	
High school or some college/vocational school	2643 (68.9%)	1193 (31.1%)	
College degree	666 (77.0%)	199 (23.0%)	
Graduate degree	407 (79.8%)	103 (20.2%)	
Missing	26	17	
Payor			<0.001
Commercial/Preferred Provider Organization	1850 (70.7%)	766 (29.3%)	

	Desire for decision-making role		P-Value
	Active (n=4536)	Passive (n=2100)	
Health Maintenance Organization	540 (70.9%)	222 (29.1%)	
Medicare	861 (64.0%)	484 (36.0%)	
Medicaid	236 (66.1%)	121 (33.9%)	
Other	202 (68.5%)	93 (31.5%)	
None/Self-pay	724 (66.4%)	367 (33.6%)	
Missing	123	47	
Work/pay status			<0.001
Yes, I work full-time for pay	1788 (71.5%)	712 (28.5%)	
Yes, I work part-time for pay	409 (68.4%)	189 (31.6%)	
No, I don't currently work for pay	2306 (66.0%)	1186 (34.0%)	
Missing	33	13	
Avoidance of health care due to cost			0.472
Yes	1034 (69.2%)	461 (30.8%)	
No	3441 (68.2%)	1606 (31.8%)	
Missing	61	33	
ENRICH social support score			0.117
Missing	106	44	
PHQ 8-item Depression Score			0.241
Missing	203	87	
Having a primary care physician			0.267
None	445 (69.0%)	200 (31.0%)	
Emergency	154 (63.6%)	88 (36.4%)	
Other	3895 (68.5%)	1794 (31.5%)	
Missing	42	18	
Clinical factors			
Hypercholesterolemia			0.760
Yes	2213 (68.2%)	1033 (31.8%)	
No	2323 (68.5%)	1067 (31.5%)	
Hypertension			0.055
Yes	2930 (67.6%)	1407 (32.4%)	

	<u>Desire for decision-making role</u>		P-Value
	Active (n=4536)	Passive (n=2100)	
No	1606 (69.9%)	693 (30.1%)	
Peripheral arterial disease			0.379
Yes	252 (66.3%)	128 (33.7%)	
No	4284 (68.5%)	1972 (31.5%)	
Diabetes			<0.001
Yes	1294 (65.4%)	685 (34.6%)	
No	3242 (69.6%)	1415 (30.4%)	
Chronic renal failure			0.424
Yes	385 (69.9%)	166 (30.1%)	
No	4151 (68.2%)	1934 (31.8%)	
Chronic lung disease			0.283
Yes	416 (66.5%)	210 (33.5%)	
No	4120 (68.6%)	1890 (31.4%)	
Congestive heart failure			0.184
Yes	428 (66.0%)	220 (34.0%)	
No	4108 (68.6%)	1880 (31.4%)	
Cancer (excluding skin cancer)			0.362
Yes	334 (66.5%)	168 (33.5%)	
No	4202 (68.5%)	1932 (31.5%)	
Smoking			0.125
Never	1043 (68.0%)	491 (32.0%)	
In the past (<100 total)	247 (70.8%)	102 (29.2%)	
Stopped >1 year ago	1339 (66.6%)	671 (33.4%)	
Stopped 1 month to 1 year ago	164 (65.9%)	85 (34.1%)	
Current (past 30 days)	1724 (69.9%)	743 (30.1%)	
Missing	19	8	
Body mass index			0.059
10 - <30	2530 (67.6%)	1214 (32.4%)	
30 - 82	1766 (69.8%)	763 (30.2%)	
Missing	240	123	

	<u>Desire for decision-making role</u>		P-Value
	Active (n=4536)	Passive (n=2100)	
Family history of coronary artery disease			0.001
Yes	2741 (70.0%)	1176 (30.0%)	
No	1773 (66.2%)	907 (33.8%)	
Missing	21	17	
Unknown	1		
Medication/counseling for depression			0.374
Yes	559 (69.8%)	242 (30.2%)	
No	3945 (68.2%)	1837 (31.8%)	
Missing	32	21	
Clinical history			
Angina			0.966
Yes	719 (68.4%)	332 (31.6%)	
No	3817 (68.3%)	1768 (31.7%)	
Acute myocardial infarction			0.016
Yes	923 (65.7%)	482 (34.3%)	
No	3613 (69.1%)	1618 (30.9%)	
Coronary artery bypass graft surgery			0.212
Yes	524 (66.4%)	265 (33.6%)	
No	4012 (68.6%)	1835 (31.4%)	
Percutaneous coronary intervention			0.085
Yes	835 (66.3%)	424 (33.7%)	
No	3701 (68.8%)	1676 (31.2%)	
Stroke			<0.001
Yes	215 (58.9%)	150 (41.1%)	
No	4321 (68.9%)	1950 (31.1%)	
Severity of acute myocardial infarction			0.270
ST-elevation acute myocardial infarction			
Yes	1990 (69.1%)	891 (30.9%)	
No	2546 (67.8%)	1209 (32.2%)	
Ejection fraction <40%			0.001

	Desire for decision-making role		P-Value
	Active (n=4536)	Passive (n=2100)	
Yes	875 (65.1%)	470 (34.9%)	
No	3018 (69.8%)	1308 (30.2%)	
Missing	643	322	
Killip class			0.399
I	3719 (68.7%)	1693 (31.3%)	
II	419 (66.0%)	216 (34.0%)	
III	79 (66.9%)	39 (33.1%)	
IV	37 (62.7%)	22 (37.3%)	
Unknown	282	130	
Diseased vessels			0.006
0	399 (73.2%)	146 (26.8%)	
1	1854 (69.6%)	810 (30.4%)	
2	988 (66.5%)	497 (33.5%)	
3	863 (66.3%)	438 (33.7%)	
Missing	432	209	
Revascularization type			0.974
None	1241 (68.2%)	579 (31.8%)	
Percutaneous coronary intervention	2835 (68.4%)	1311 (31.6%)	
Coronary artery bypass graft surgery	460 (68.7%)	210 (31.3%)	
Acute systolic blood pressure	141.7 ± 31.0	141.5 ± 30.1	0.725
Missing	60	30	
Initial heart rate	81.7 ± 21.6	83.1 ± 22.5	0.022
Missing	45	22	
GRACE 6-month mortality risk score	101.3 ± 30.5	106.0 ± 31.8	<0.001
Percent of eligible QOC indicators received			0.252
0 - <90	1556 (67.5%)	750 (32.5%)	
90 - 100	2975 (68.8%)	1346 (31.2%)	
Missing	5	4	

Continuous variables compared using Student's t-test; categorical variables compared using chi-square or Fisher exact test.

ENRICHD, Enhancing Recovery in Coronary Heart Disease Patients; GRACE, Global Registry of Acute Coronary Events; PHQ, Patient Health Questionnaire; QOC, quality of care