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Regional Variations in Palliative Care: Do Cardiologists Follow Guidelines?

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Abstract

Objectives: Regional variation in health care use in the last 6 months of life is well documented. Our objective was to examine whether an association exists between cardiologists' tendencies to discuss palliative care for patients with advanced heart failure and the regional use of health care in the last 6 months of life.
Methods: We performed a national mail survey of a random sample of 994 eligible Cardiologists from the American Medical Association Masterfile. Hypothetical patient scenarios were used to explore physician management of patient scenarios.
Results: We received 614 responses (response rate: 62%). In a 75-year-old with symptomatic chronic heart failure and asymptomatic nonsustained ventricular tachycardia, cardiologists in regions with high use in the last 6 months of life were less likely to have discussions about palliative care (23% versus 32% for comparisons between the highest and lowest quintiles, $p = 0.04$). Similarly, in an 85 year-old with symptomatic chronic heart failure and an acute exacerbation, cardiologists in high use regions were less likely to have discussions about palliative care (35% versus 47%, $p = 0.0008$).
Conclusions: Despite professional guidelines suggesting that cardiologists discuss palliative care with patients with late stage heart failure, less than half of cardiologists would discuss palliative care in two elderly patients with late-stage heart failure and this guideline discordance was worse in the regions with more health care use in the last 6 months of life.

Introduction

Use of health care in the last 6 months of life varies markedly across the United States.[1] In relation to this, hospice and palliative care also exhibit particularly dramatic variation. In 2006, approximately half of the hospitals in the country had hospital-based palliative care teams ranging from over 80% in Montana to less than 20% in Alabama and Mississippi.[2] Likewise, referrals to hospice prior to death ranged from 11% to 43% among a cohort of the highest rated hospitals in the country.[3] These wide variations in health care do not appear to relate to patient preferences or disease severity[4,5] nor are they associated with better outcomes or increased patient satisfaction.[6,7] Physician practice patterns may be responsible for geographic variations in health care spending,[8] but this association has been difficult to demonstrate.[9]

Heart disease remains the leading cause of death and as a consequence, cardiologists frequently encounter patients in the last six months of their lives. In the case of heart failure, the American College of Cardiology/American Heart Association (ACC/AHA) Guidelines recommend "palliative care" in the context of signs and symptoms of heart failure despite therapy.[10,11] This study evaluates the regional association between cardiologists' reported tendency to discuss palliative care and the regional intensity of care in the last 6 months of life.

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Methods

Study design

A national survey of cardiologists was conducted to test whether the intensity of treatment recommendations in clinical scenarios was associated with the regional use of medical resources. Overall results of the survey are reported elsewhere.[12] This report focuses on items from the parent survey specifically addressing palliative care. The survey was conducted between May and July, 2004. This research was approved by the Institutional Review Boards at Dartmouth Medical School and the University of Massachusetts.

Survey development

The survey was developed in several steps. First, the research team developed the initial draft of two surveys (one for internists and one for cardiologists) based on their lessons learned from prior surveys.[13,14] Next, modifications were made based on feedback from four focus groups of cardiologists and internists in areas of high (Miami, FL) and low intensity (Portland, OR). Finally, 12 cognitive interviews were conducted (8 with internists and 4 with cardiologists) to ensure clarity of the questions and answer choices. The final survey contained questions about the demographics of the clinician followed by hypothetical patient scenarios commonly encountered in cardiology.

Data collection

Study population. The physician sample was obtained from the American Medical Association Masterfile. To be eligible, the respondent had to be an actively practicing cardiologist seeing patients at least 20 hours per week. Eligibility was verified by telephone prior to mailing the survey with a maximum of three call attempts during the daytime and evening. For this analysis, subspecialty within cardiology was determined based on self-reported scope of practice rather than board certification: any cardiologist who reported performing electrophysiologic procedures was categorized as an "electrophysiologist"; those reporting performing percutaneous interventions but not electrophysiologic procedures were classified as "interventional"; cardiologists who reported performing cardiac catheterizations without interventions or electrophysiologic procedures were classified as "invasive"; and if none of the above were true, they were classified as "general cardiologists." A sample of 1340 cardiologists was identified. Of these, 183 were deemed ineligible based on the initial telephone screening. Of the 1157 remaining, 999 were randomly chosen to receive the mail survey. Of these, 5 additional respondents were determined to be ineligible.

Mail procedures. Each potential respondent was sent an initial questionnaire packet with a letter explaining the study, a $20 cash incentive, the survey, and a postage-paid return envelope. Nonresponders were sent a second survey 2 weeks after the initial mailing absent the cash incentive.

Measures

Recommend palliative care. One scenario described a 75-year-old man with New York Heart Association (NYHA) class IV (severely symptomatic) heart failure symptoms and nonsustained ventricular tachycardia and another described an 85-year-old man with NHYA class IV heart failure with an acute heart failure exacerbation. Each scenario was followed by a question asking how often would you "initiate or continue discussions about palliative care." Response choices, along a 5-point Likert scale, ranged from "always/almost always" to "never."

Regions. The regional unit used in this analysis was the Hospital Referral Region (HRR). HRRs were developed by researchers at Dartmouth using the Medicare claims data to identify regions with common referral patterns for major cardiovascular and neurosurgical procedures. Each cardiologist was assigned to an HRR based on the zip code of his practice address.

End-of-life intensity. To determine the intensity of care in the last 6 months of life for each region, we used the end-of-life expenditure index (EOL-EI). This is a measure based on mean Medicare expenditures for beneficiaries aged 65 and older in the last 6 months of life. The development of this measure is described elsewhere.[4,5] The mean EOL-EI was calculated for each of 306 HRRs, which were then grouped into five quintiles of equal populations.

Statistical analysis

Responses were dichotomized using "always/almost always" and "most of the time" to indicate an affirmative response that the clinician would recommend "discussions about palliative care." Logistic regression was used to evaluate the association between end-of-life intensity and guideline concordance with the dichotomized responses as the dependent variable and regional spending as determined by

Table 1. Characteristics of the Survey Study Respondents

Age, mean (SD)	52.3 (9)
Gender—Male, no. (%)	556 (93)
Race, no. (%)	
White	479 (81.5)
Black	7 (1.2)
Asian	82 (14.0)
Other	30 (5.0)
Board certified, no. (%)	559 (95)
Subspecialty, no. (%)	
General cardiology	214 (35.8)
Invasive	128 (21.4)
Interventional	212 (35.5)
Electrophysiology	44 (7.4)
Practice Type, no. (%)	
Solo or two-person practice	115 (19.3)
Single specialty group	323 (54.2)
Multispecialty group	89 (14.4)
Group or staff model HMO	9 (1.5)
Hospital-based practice (VA or other)	46 (7.7)
Other	14 (2.4)
Payment Type, (%)	
Medicare	52.4
Medicaid	8.6
Other Insurance	34.1
No Insurance	5.0
Capitated	11.5

HMO, health maintenance organization.

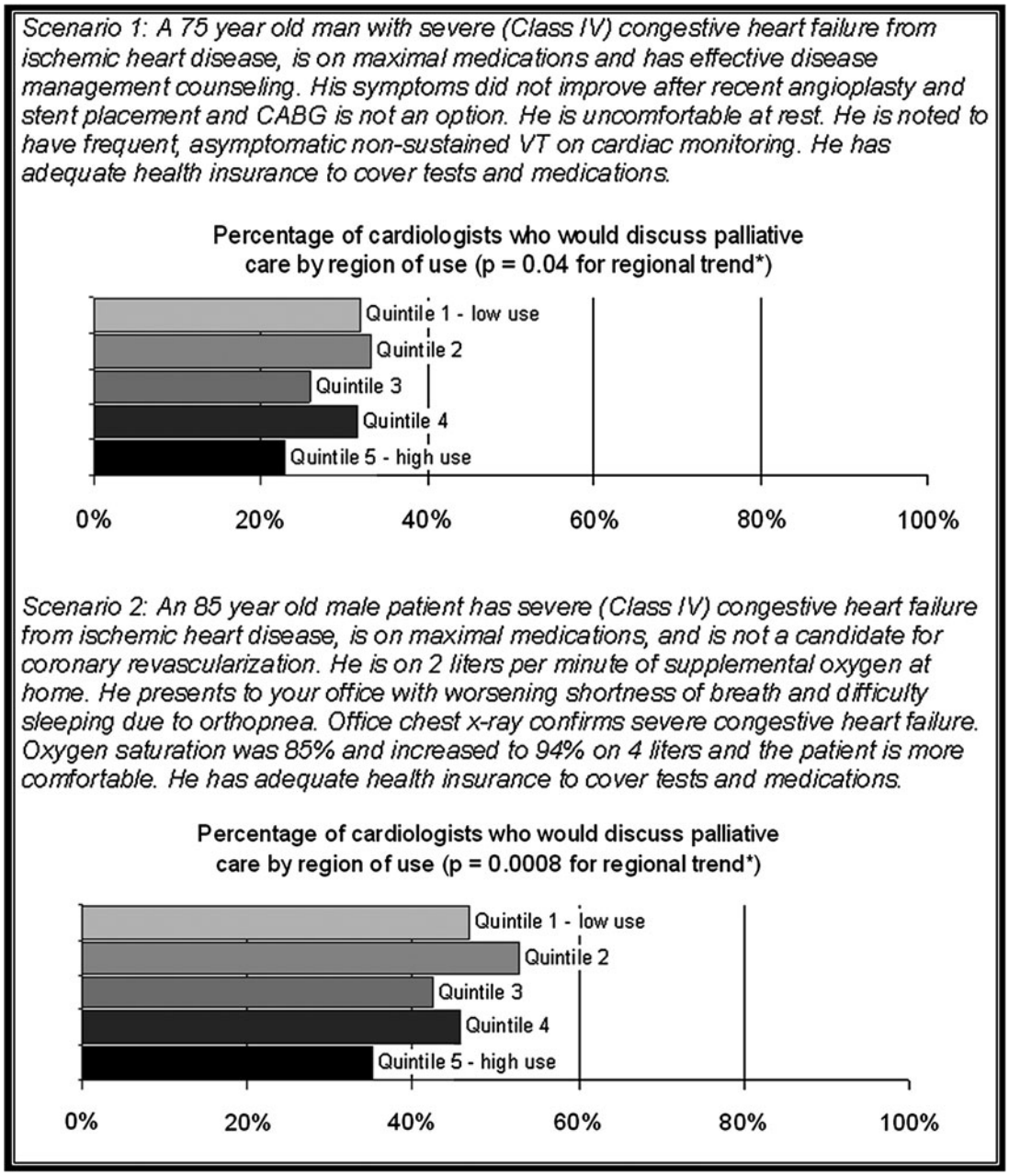

FIG. 1. Cardiologists tendency to discuss palliative care across regions of health care use in the last 6 months of life for two patients with late-stage heart failure.

the EOL-EI as a continuous independent variable. Results were adjusted for physician age, gender, and specialty.

Results

In total, we received 614 completed surveys of the 994 surveys sent to eligible respondents (response rate of 62%).[15] There were no differences between responders and non-responders in terms of gender, practice type, and year of medical school graduation ($p > 0.05$ for all comparisons). Despite prescreening for specialty, an additional 16 physicians reported their specialties as something other than cardiology on the survey; these observations were excluded, leaving a total analytic sample of 598.

The physician sample consisted predominantly of white (81%), male (93.1%), board certified (94.6%) cardiologists with an average age of 52 (Table 1). Categorized according to self-reported scope of practice, 36% of participants were classified as general cardiologists, 21% as invasive cardiologists, 36% as interventional cardiologists, and 7% as electrophysiologists. Other information on payment sources and practice type is shown in Table 1.

In a 75-year-old patient with stage IV heart failure and nonsustained ventricular tachycardia, less than a third of the cardiologists would "initiate or continue discussions about palliative care" and this was lower in the higher spending regions (23% versus 32% for comparison between the lowest and highest quintiles, $p = 0.04$ for trend). In an 85 year-old

patient with stage IV heart failure and an acute exacerbation, less than half of the cardiologists would "initiate or continue discussions about palliative" and this was also lower in the higher spending regions (35% versus 47%, $p = 0.0008$; Fig. 1).

Discussion

ACC/AHA guidelines for chronic heart failure clearly recommended that cardiologists engage in discussions about prognosis, advanced directives, care coordination, and symptom control in patients with late stage heart failure (e.g., symptomatic despite therapy).[10,11] Over half of the cardiologists sampled for this study recommended care that was discordant from these guidelines and this discordance was worse in the regions performing more intense medical care in the last 6 months of life.

There are a few potential explanations for our findings. Most patients and their families want and expect an accurate and honest estimate of prognosis[16,17] and they want their physicians to initiate these discussions.[18] However, significant uncertainty in prognosticating heart failure makes initiating such discussions challenging and is a barrier to palliative care.[19,20] Alternatively, cardiologists may have interpreted this question with the common misunderstanding that "initiating and continuing discussions about palliative care" means forgoing aggressive treatment.

Several factors should be considered in the interpretation of our findings. First, because we used Medicare data to measure end-of-life intensity of health care, the EOL-EI may not represent the intensity of end-of-life care in all age groups. However, both patients in the scenarios were over the traditional Medicare age of 65. Second, we used hypothetical scenarios to judge practice patterns. However, hypothetical scenarios are a particular strength of this study because they remove unmeasured patient confounders.[21,22] Finally, the survey was performed in 2004 and may not reflect cardiologists' current inclinations to discuss palliative care. However, while the overall rate of palliative care discussions may be higher today than in 2004, regional variation in the intensity of care in the last 6 months of life remains[1] and our finding that regional differences exist in cardiologists' propensity to discuss palliative care is likely unchanged as well.

The work to improve the care of patients with end-stage heart failure is important, challenging, and ongoing. While recent reviews on palliative care in HF have been published in major cardiovascular journals,[23,24] the research on palliative care in heart failure is lagging.[20] Furthermore, quality measures such as 30-day heart failure-specific mortality may create disincentives to discussing palliative care.[25] Thus, efforts to increase awareness of palliative care among cardiologists and knowledge about how to best implement palliative care in heart failure populations are greatly needed.

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Author Disclosure Statement

No competing financial interests exist

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