

## Research Letter

### African Americans With Advanced Heart Failure Are More Likely to Die in a Health Care Facility Than at Home or in Hospice: An Analysis From the PAL-HF Trial

A majority of patients die in health care facilities, even though most patients prefer to die at home.<sup>1</sup> Patients with heart failure (HF) are more likely to die in health care facilities than patients with other serious illnesses such as cancer, but the reasons for this difference are unclear.<sup>1</sup> We analyzed patients enrolled in the Palliative Care in Heart Failure (PAL-HF) trial to identify factors associated with patients' dying in health care facilities as opposed to at home or in a hospice facility. The premise of our analysis was that death at home or in a hospice is preferable to death in a health care facility for most patients.

PAL-HF was a prospective, single-center, nonblinded clinical trial that enrolled patients with advanced HF and a high 6-month mortality risk randomized 1:1 to 6 months of usual care alone or usual care plus a palliative-care intervention.<sup>2</sup> The primary outcome for the present analysis was location of death, dichotomized into death in a health care facility (hospital or skilled nursing facility) or death at home (with or without hospice care) or inpatient hospice. Based on the number of deaths (N = 78), we selected 8 candidate explanatory baseline variables of interest a priori,

based on prior research<sup>1</sup> and clinical judgment: study arm, sex, age, race, presence of a caregiver in the home, N-terminal prohormone of brain natriuretic peptide, Kansas City Cardiomyopathy Questionnaire score, and Functional Assessment of Chronic Illness Therapy-Palliative Care (FACIT-PAL) score. We assessed predictors of death location using logistic regression with forward variable selection ( $P < 0.2$  to enter the model). We also assessed differences in number of hospitalizations per patient over the study period by location of death by using a linear regression model.

Of 150 patients (75 per arm), 78 (52%) died during a mean follow-up of 9.6 months (median 6.7 months), of which 66 (85% of the deaths) had a known location; they were included in the analysis. More patients died at home (with or without home hospice) or inpatient hospice (n = 44) than in a hospital (n = 18; 27%) or skilled nursing facility (n = 4; 6%) (Table 1). More people died at home or in hospice in the intervention arm (n = 24; 55%) than in the control arm (n = 20; 45%) ( $P = 0.30$ ). After adjusting for the study arm, African American race compared to white race was the only factor associated with an increased likelihood of dying in a health care facility (adjusted odds ratio 3.38, 95% confidence interval 1.11–10.33,  $P = 0.03$ ). No differences were noted in baseline Kansas City Cardiomyopathy Questionnaire baseline, FACIT-PAL or pre-enrollment number of hospitalizations in patients who died at home or in hospice compared to patients who died in a health care facility.

**Table 1.** Characteristics of Patients who Died at Home or in an Inpatient Hospice Compared With Patients who Died in a Hospital or Skilled Nursing Facility

Patient characteristics	Home or inpatient hospice (n = 44)	Hospital or skilled nursing facility (n = 22)	P value*
Intervention arm	24 (55%)	9 (41%)	0.30
Usual care alone arm	20 (45%)	13 (59%)	
Age (years)	71.5 (64.5, 80.5)	70.0 (54.0, 80.0)	0.35
Women	15 (34%)	10 (46%)	0.37
BMI (kg/m <sup>2</sup> )	25.3 (23.6, 31.5)	26.8 (22.7, 29.2)	0.97
African American	13 (30%)	12 (55%)	0.048 <sup>†</sup>
Married	23 (52%)	8 (36%)	0.22
< College education	19 (43%)	9 (41%)	0.86
Christian religion	35 (80%)	17 (77%)	0.83
NT pro-BNP (pg/mL)	7868 (4035, 15300)	7894 (7868, 9750)	0.33
Baseline KCCQ	26.6 (17.4, 47.1)	32.2 (13.8, 39.8)	0.82
Baseline FACIT-PAL	111.7 (97.0, 128.8)	119.4 (110.3, 119.4)	0.14
No. of hospitalizations	1.0 (0, 2.5)	1.0 (1.0, 2.0)	0.68

BMI, body mass index; FACIT-PAL, Palliative Care in Heart Failure; KCCQ, Kansas City Cardiomyopathy Questionnaire; NT pro-BNP, N-terminal prohormone of brain natriuretic peptide.

Note: Results are presented as n (%) or median (25th, 75th percentiles).

\*P values are based on the chi-square statistic for categorical data and the nonparametric test for continuous variables.

<sup>†</sup>The P value is different from the one presented in the text because that was based on a logistic regression model of the treatment group.

The high proportion of African American patients dying in a health care facility may reflect their actual care preferences rather than access to palliative care services.<sup>3</sup> More African Americans displayed a preference to die in a hospital compared to whites (18% vs 8%) in a survey of Medicare beneficiaries.<sup>4</sup> African Americans also showed greater preference for prolonged mechanical ventilation and potentially life-sustaining drugs in this prior analysis.<sup>4</sup> African Americans patients with heart failure were also less likely to die at home or in hospice in a recent analysis of national United States data.<sup>5</sup> Factors associated with low use of palliative care by African Americans include spiritual and religious beliefs, low health literacy and lack of trust in the medical system.<sup>3</sup>

Our study adds to these data by demonstrating this association in an advanced population with heart failure with a large proportion of minority patients which, given its trial design, provided equal access to palliative care. Our findings, therefore, suggest that the high proportion of African American patients dying in health care facilities may be due to care preference rather than access to palliative care. Limitations include a potential for bias, given 15% missing data in death location and lack of preadmission location data. More work is needed to ensure greater understanding of, and concordance between, patients' preferred and actual place of death.

### Disclosures

No relevant disclosures

### Acknowledgments

None.

### Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:[10.1016/j.cardfail.2019.05.013](https://doi.org/10.1016/j.cardfail.2019.05.013).

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<https://doi.org/10.1016/j.cardfail.2019.05.013>