

Toward equitable utilization of durable left ventricular assist device therapy in advanced heart failure—Raising the veil of health disparities

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Abstract

Heart failure (HF) is a progressive disease with high attendant morbidity and mortality. Contemporary guideline-directed medical therapies have led to remarkable improvements in HF outcomes. However, in a subset of patients, progression to advanced HF stages requiring durable left ventricular assist device (LVAD) and or heart transplantation is inevitable. LVADs improve survival and quality of life in eligible patients with advanced HF. However, access to LVAD therapy is marked by disparities, attributable to race and ethnicity, social-economic status, geography, and sex and gender categories. This commentary addresses the findings by Jones and colleagues on “The Impact of Race on Utilization of Durable Left Ventricular Assist Device Therapy in Patients with Advanced Heart Failure” and also highlights the importance of social determinants of health in defining health disparities as well as the urgent work needed to improve HF clinical outcomes by dismantling these disparities.

KEYWORDS

advanced heart failure therapies, disparities, heart failure, LVAD

Leaving, then, the White world, I have stepped within the Veil, raising it that you may view faintly its deeper recesses,—the meaning of its religion, the passion of its human sorrow, and the struggle of its greater souls—The Souls of Black Folk, W. E. DuBois.¹

Heart failure (HF) is a progressive disease with strikingly high morbidity and mortality rates.² Although contemporary guideline-directed medical therapies have led to remarkable improvements in HF outcomes, a subgroup of patients' clinical trajectories invariably progress to require advanced HF therapies, that may include durable left ventricular assist device (LVAD) and or heart

transplantation.³ In the United States, among the 6.2 million patients with a diagnosis of HF, approximately 5% per year progress to stage D phenotype, a more advanced stage of HF warranting consideration for advanced therapies.⁴ Durable LVADs and heart transplantation may improve survival and quality of life for eligible patients with advanced HF. Unfortunately, the allocation of LVAD and especially heart transplantation, limited by organ availability, remains widely inequitable across many parts of the United States.^{5,6} Disparities in allocation and receipt of advanced HF therapies are vividly evident especially, along racial and ethnic lines, social-economic status, geographical locality (metropolitan, micropolitan vs. rural), and along sex and gender categories.^{7–12} These vexing inequities have remained recalcitrant

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despite a myriad of publications documenting their existence, along with the associated adverse outcomes.¹³

In this issue, Jones et al., report their findings of “The Impact of Race on Utilization of Durable Left Ventricular Assist Device Therapy in Patients with Advanced Heart Failure.” The authors conducted a single-center observational study involving patients with advanced HF who were eligible for durable mechanical circulatory support (LVEF < 30% and inotropic dependence or need for mechanical circulatory support) between January 2013 and December 2017. The authors used an adjusted logistic regression model for the outcome of durable LVAD implantation within 90 days of the index admission to analyze the effect of race on LVAD implantation. From an eligible cohort of 702 patients (60.9% White, 34.1% Black), durable LVAD implantations were performed within 90 days of the index admission in 183 (26%) of the cohort. After multivariate analysis, the authors found that Black patients had similar rates of implantation compared to White patients (OR 0.68, 95% CI 0.45–1.04; $p = 0.074$). The authors concluded that “Black patients in our study did not have a statistically significant difference in the rate of durable LVAD implantation compared with White patients after adjustments were made for age, sex, socioeconomic and clinical covariates. Larger prospective studies are needed to validate these findings.”

The authors should be congratulated for their well-designed study examining the important role that race and ethnicity play in the allocation and receipt of LVAD therapy, at least from a unique perspective of a single large quaternary healthcare system. Given the perennially low adoption rates of advanced HF therapies among Black patients in the United States (as reported from other nationally representative data sets),^{5,7} the finding of parity in the utilization of LVADs between Black and White patients is certainly a valid reason for optimism. The findings do indeed signal that the achievement of equity in the allocation of life-saving therapies with LVADs is possible and should be aggressively pursued even from a moral/ethical imperative. Even so, it is important to ground these encouraging findings in the right clinical context.

First, HF is widely prevalent in Black populations who also experience worse attendant outcomes compared to other racial and ethnic groups.^{2,14,15} For example, HF mortality trends, from a recent large national representative data set demonstrated that the age-adjusted mortality rate for HF patients increased for all racial and ethnic groups between 1999 and 2019; with Black adults having the highest mortality rates that were approximately threefold higher than other racial groups (6.41 in 1999 and 8.58 in 2019 per 100,000 persons compared to an increase in Hispanic adults and White adults from 1.62 to 2.04 and 1.83 to 2.45, respectively). In this context, a mere parity of allocation rates of LVAD therapy between Black and White patients may not necessarily reflect a true attainment of equity in LVAD utilization. The high prevalence of HF, along with the increased burden of HF mortality in the Black population, may underscore the need for increased utilization of LVADs that is proportionate to the eligible number of patients needing LVADs. Whether parity of utilization rates of LVAD in this study (between Black and White patients), represents a relative underutilization of

LVAD therapy when one considers the overall burden of advanced HF Black patients may be worth further exploration.

Second, when LVAD implantation rates were analyzed based on the dichotomized strata of minoritized racial and ethnic groups (American Indian/Alaska Native, Asian, Multiracial, and Native Hawaiian/Pacific Islander) on one hand versus White race category on the other, stark differences emerged which further illuminated the persistence of racial and ethnic disparities in LVAD allocation. Minoritized groups had lower rates of LVAD implantation compared to White patients.

Factors underlying disparities in health care are multifaceted and may include, social-economic status, insurance status, structural racism, and implicit bias.^{9,16,17} It is, therefore, not surprising that Jones et al., demonstrated that Medicaid insurance status was associated with lower rates of LVAD implantation. Possession of adequate health insurance coverage assures access to quality health care and is associated with improved clinical outcomes.¹⁸ For example, the implementation of the Affordable Care Act Medicaid Expansion was correlated with increased heart transplant listings in African American patients.⁶ Healthpolicy frameworks that broaden access to adequate health insurance coverage, especially for minoritized groups is critical to overcoming healthcare disparities and in this case, improved access to LVAD therapy for patients with advanced HF.

Another salient finding that warrants somber reflection that is highlighted by Jones et al., is the enduring nature of gender disparities in LVAD allocation. The authors illuminate, as others have done previously, the lower rates of LVAD implantation in Women with advanced HF.^{10,19–22} The authors surmise that the differences in LVAD implantation could be partially attributable to the lower body sizes that may in some cases preclude or pose challenges for implantation of the larger profiles of LVADs such as HeartMate II, that were once widely used during the timespan of the study. In our contemporary era, however, the selection of durable LVAD is now almost exclusively consigned to the smaller HeartMate 3 device profiles after HeartWare VAD was removed from the market.²³ In this sense, more studies are needed to understand the contemporary utilization patterns of LVAD therapy based on sex differences in the current era of diminutive ventricular assist device profiles.

Finally, it is important to understand the tenets underlying most disparities in health care. Disparities in health care are principally attributable to social determinants of health and the complex interplay of structural racism on the health of minoritized groups (rather than by biology and genes).^{24–27} Given that many of the enduring healthcare disparities are firmly undergirded by unjust social constructs, it also follows then that health disparities (as in the case of inequity in LVAD access), can also be socially deconstructed through collective and multifaceted efforts that are centered on improving the lives of all people, regardless of skin color, social-economic status, geography, or sex and gender. It is when we see “within the veil,” even faintly, the depth of “human sorrow” that comes with inequitable access to life-saving therapies, that we will see more clearly the urgency of confronting healthcare disparities.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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