Racial and Sex Disparities in the Management of Hypertrophic Cardiomyopathy

Racial/ethnic and sex disparities are well documented in various aspects of cardiovascular care delivery, leading to several initiatives from national organizations to study and to mitigate these disparities. It has been known for several years that women and Blacks with heart failure are less likely to be offered primary prevention implantable cardioverter-defibrillator (ICD) implantation. There has been a possible closing of the racial gap in ICD use in recent years, with persistent disparities noted in women.1,2

In this issue of the Mayo Clinic Proceedings, Patlolla et al3 extend these distressing trends to the use of ICDs in patients with hypertrophic cardiomyopathy (HCM). In a retrospective analysis of the National Inpatient Sample, evaluating 23,533 HCM hospitalizations, they report an increasing trend in the percentage of ICD procedures with time. However, compared with a man, a woman hospitalized with HCM was only 72% as likely to receive an ICD, and this trend persisted for the duration of the study. When women and non-Whites received an ICD, it was more likely to be for secondary prevention. In fact, sex- and race-based disparities were apparent in the implantation of primary prevention ICD only. These observations remain true after adjustment for socioeconomic status, size of treating hospital, and insurance status. These are indeed sobering findings, given the important role ICDs have played in extending longevity in HCM. Apparent overuse of primary prevention ICDs was also noted in the Northeast United States compared with other regions.

The variable use of ICDs for primary and secondary prevention in these subgroups is interesting but not a surprise. Current guidelines list indications for secondary prevention as class 1 (translates to “is recommended”) compared with primary prevention guidelines, which are considered class 2a or class 2b (translates to “is reasonable” or “may be reasonable”). Thus, there is greater need for exercising physician judgment and counseling for primary prevention indications, thus introducing greater chance for bias.

Whereas the reasons for these disparities are unclear, recent advances in our understanding of racial and sex-specific differences in the phenotype of HCM may shed some light on potential reasons. Although the prevalence of an autosomal dominant disorder like HCM is expected to be equal between the sexes, men form roughly 60% of published cohorts.4 Similarly, Blacks consist of 10% or less of HCM cohorts.5,6 In addition to underrepresentation of women and minorities in studies, there is also a lack of prespecified race- and sex-specific data analysis. Hence, published risk stratification schemes for sudden death prevention are heavily tilted toward White men, and whether sex- or race-specific risk modifiers play a role requires further study.

Women are on average 9 years older than men at the time of diagnosis and have more heart failure symptoms due to outflow tract obstruction or diastolic dysfunction.4 Women and Blacks also have more progression to advanced New York Heart Association class 3 or class 4 heart failure compared with men and Whites, which may lead physicians to withhold ICD implantation.4,6 This is evidenced in the study of Patlolla et al, which found that women with HCM receiving an ICD tend to be older with advanced disease and higher rates of other comorbidities, including ventricular arrhythmia. Consequently, women are also more likely to derive benefit from early septal reduction surgery.7,8 Whereas the role of septal reduction as a sudden death risk modifier is unclear, it is conceivable that subsequent reduction in septal thickness may prompt physicians to not consider ICD implantation.
Women with HCM have higher mortality than men, with heart failure and stroke driving this difference. However, the risk of sudden death and the benefit of ICD implantation are similar in men and women. Risk of sudden death in Blacks has been reported variably to be the same as or higher than in Whites. Importantly, data from HCM centers of excellence showed similar use of primary prevention ICD, age at ICD implantation, and subsequent appropriate ICD shocks when stratified by sex and race. This is in contrast to the national experience reported by Patlolla et al. One potential explanation is the greater likelihood of appropriate ICD counseling at HCM referral centers. Importantly, women and racial minorities have been known to be referred less often and later to these centers of excellence. The inclusion of hospitalization data alone in this study may also explain the discordance with prior studies.

This brings us to some critical questions. How often did primary prevention ICD implantations in this cohort conform to published guidelines? Do these disparities translate to worse outcomes in women and racial minorities? Disparities in ICD use can be due to a combination of underuse in one group and overuse in the other. For example, Cook et al reported ICD overuse in White men with heart failure discordant with guidelines in addition to underuse in women and racial minorities. Patlolla et al suggest that overuse may be at play in the regional differences noted with high ICD implantation rates in the Northeast. Because the clinical risk factors driving ICD implantation and long-term outcomes are unknown in the National Inpatient Sample cohort, these observations should be confirmed in multicenter HCM cohorts in whom such data are available.

Patlolla et al classified race as White and non-White, the latter consisting of Blacks, Hispanics, Asian and Pacific Islanders, Native Americans, and other races. Presumably, racial underrepresentation underpinned this classification and statistical analysis of the data. However, as pointed out by Breathet et al in their editorial in Circulation: Cardiovascular Quality and Outcomes, such a classification implies that the White race is assumed as the standard by which others are compared.

Despite these disease-specific issues, sex and racial disparities most often arise because of systemic biases in the health care system, including physician bias, cultural and communication gaps, patient predilections, and lack of access to needed care. In this regard, Patlolla et al have exposed another critical area in the quest for health care equity. Where do we go from here? Future studies are needed to confirm these findings and to go beyond process-based measures to focus on cause and effect of these disparities. Well-designed studies are needed to assess physician and patient attitudes, obstacles to accessing specialized care, and long-term outcomes in underrepresented populations as a first step toward ensuring health care equity. Hypertrophic cardiomyopathy centers should focus their research on enriched populations of women and racial minorities with the aim of providing precision medicine to individuals with HCM.

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REFERENCES