EDITORIAL COMMENTARY

Six percent of electrophysiology operators in the United States are women: Are we making enough progress?

Kavisha Patel, MD, Ulrika Birgersdotter-Green, MD

From the Section of Electrophysiology, Division of Cardiology, UC San Diego Health, University of California, San Diego, San Diego, California.

Despite a steady increase in the number of female physicians in the United States, there remains a small proportion pursuing a career in electrophysiology (EP). According to the report from the Association of American Medical Colleges, 35.8% of the physician workforce comprised women in 2018. Cardiovascular medicine ranked among the lowest in terms of female representation, with only 14.9% of the physician workforce comprising women. In procedural subspecialties such as interventional cardiology and EP, this underrepresentation is even more pronounced. The third decennial Professional Life Survey conducted by the American College of Cardiology (ACC), led by the leadership council of Women in Cardiology, reported that only 6% of female cardiologists identified themselves to be practicing electrophysiologists. According to the data from the American Board of Internal Medicine, over the past decade, only 9%–18% of first-year EP fellows were women. Physician-gender concordance has been noted to affect clinical outcomes; this concordance may also benefit patients with heart rhythm disorders.

In this issue of Heart Rhythm Journal, Howell et al report data on temporal and geographic trends of female EP operators in practice by using the Medicare Provider Utilization and Payment Database. On average annually from 2013 to 2019, of 3524 EP operators, only 5% of the operators were women. This percentage showed no significant improvement over the 7-year study timeframe. Furthermore, procedurespecific analyses noted a correspondingly low proportion of women across individual procedure types. Despite a 137% increase in atrial fibrillation ablation operators between 2013 and 2019, the percentage of female atrial fibrillation ablation operators remained staggeringly low (average: 4%; \( P = NS \)). Similarly, the number of female EP operators for device implants and supraventricular tachycardia/atrial flutter remained relatively unchanged (average: 5%; \( P = NS \)). Moreover, one-fifth of the US states had no female EP operator who performed >10 EP procedures of any type as compared with zero states with no male EP operator with at least moderate procedural volume.

We commend the authors for bringing these important findings to light. While prior studies have assessed gender disparities in salaries, Medicare reimbursements, and cardiovascular clinical trial leadership, this is the first study looking at the distribution of female EP operators in clinical practice in the United States using the Medicare database. The marked underrepresentation of women in procedural EP is likely driven by 2 factors: low rates of cardiovascular fellows in training (FTTs) deciding to pursue EP and probable attrition of practicing female electrophysiologists with time. Factors influencing the decision to pursue a career in EP was recently assessed by an online survey sent to cardiovascular FTTs in the United States and Canada by ACC. In 933 respondents (30% women), the key factors cited while choosing EP were strong interest in the subspecialty, opportunity to perform hands-on procedures, and analytical clinical decision-making process. Compared with men, women were also more likely to be influenced by a female role model. After exclusion of FTTs interested in interventional cardiology, factors that negatively influenced women from pursuing EP included lack of female role models, radiation concerns, perceived “old boys’ club” culture, and concerns for discrimination/harassment.

Several potential strategies to address the above factors have been proposed. As one of the most frequently identified factors influencing a trainees’ subspecialty choice is role models/positive mentoring, introduction of focused mentoring and networking programs for female internal medicine residents and cardiology fellows can serve to provoke an early interest in EP. Fostering a work culture of inclusion and having male allies as mentors is also essential. The need for more women in leadership roles who can encourage women to pursue this career path cannot be overemphasized. Addressing concerns about radiation exposure during

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pregnancy is also important to decrease the gender gap in EP. In a survey by the Women in Cardiology pregnancy workforce group administered to female physician members of ACC, 76% reported at least 1 pregnancy; of the quarter who had not been pregnant, about half reported that they hoped to become pregnant. Forty-seven percent of women reported trying to avoid pregnancy during periods that they would be exposed to radiation. Strikingly, one-third of respondents reported that their department did not have an official policy concerning radiation exposure during pregnancy and one-third were unaware if their department did. Among women who had pregnancy-related radiation exposure in the aforementioned survey, only 20% used fetal radiation badges, 24% used additional lead, and 42% increased distance from radiation sources, indicating pregnant women did not consistently use radiation monitoring tools or methods of decreasing fetal radiation exposure. Compared to a similar study of radiation oncology residents where 89% used fetal radiation badges, these numbers were significantly lower. The factors responsible for this underutilization are not entirely clear: whether women are unfamiliar with these radiation reduction strategies or there are other barriers that prevent their optimal utilization is unknown. Providing education to cardiologists about radiation reduction and monitoring strategies at the time of entering fellowship, with employment and with fluoroscopy credentialing can be beneficial. Establishing a channel for communication between female cardiologists and radiation safety officers, providing maternity lead and fetal dosimeters can also serve to tackle underutilization of these strategies. Integration of intracardiac echocardiography and 3-dimensional mapping modalities can significantly reduce radiation exposure without increasing procedural duration or compromising patient safety. FITs should receive training in performing ablation procedures with minimal or zero fluoroscopy use. Over half of the female cardiologists have reported pressure to take truncated maternity leaves than available to them. Cardiovascular FITs were more likely to feel pressure to shorten their maternity leave than female cardiologists in practice. To address this, it has been proposed that workplaces develop parental leave policies and clearly incorporate them in employment contracts. During cardiovascular training, it is also recommended that fellowship program directors work in conjunction with the Accreditation Council for Graduate Medical Education to offer flexible training pathways, accommodate rotation schedule modifications, and offer transparent parental leave policies. In a global survey conducted by ACC of >5900 cardiologists (23% women), 44% reported a hostile work environment with significantly higher rates reported by women than by men. Individual components of the hostile work environment were also more prevalent in women than in men: emotional harassment, discrimination, and sexual harassment. Furthermore, multivariate analyses noted that female and younger cardiologists early in their career were at the highest odds of experiencing a hostile work environment. Zero tolerance policy for harassment or discrimination in the workplace is imperative to recruit and retain talent.

Recently, there has been an improvement in terms of female representation in leadership roles. Three Heart Rhythm Society presidents in the past decade have been women. A steady increase has been noted in female physician speakers at major cardiovascular conferences. With recruitment of more women in leadership roles, and with ongoing efforts toward identifying and addressing barriers, the authors remain hopeful that we will be able to attract more cardiology FITs to pursue EP. The common goal must be to strive toward a diverse, inclusive, and supportive environment for both genders to thrive in.

References