LEARNING THE ROPES: ASPECTS ON MALE VS. FEMALE SEX IN HYPERTENSION

Introduction 1

Sex and Gender-Based Analysis in Hypertension: Known
knowns, the known unknowns, and the unknown unknowns

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The past year has been particularly noteworthy in terms of sex- and gender-based research in hypertension. In May, the Lancet Women and Cardiovascular Disease Commission released their report and call to action which included recommendations to reduce the global burden of cardiovascular disease in women by 2030¹. Within the ISH, there has been a significant increase in activity from our Women in Hypertension Research Committee and the ISH Mentorship and Training Committee recently hosted a training workshop on “[Sex Differences in Hypertension](#)”. It is therefore timely that Hypertension News would feature this Learning the Ropes on Aspects of male vs. female sex in hypertension.

Sex- and gender-based analysis (SGBA) is an approach to systematically examine sex (i.e. biological factors) and gender (i.e. sociocultural factors)-based differences in measured variables between men, women, boys, girls and gender-diverse people. The central goal is to ensure rigorous research that achieves a more complete understanding of the health determinants for all peoples. SGBA has, in fact, been a consideration in hypertension research for some time; Boynton and Todd noted that male university students had higher BPs compared with women in 1947 and animal data supporting this from the late 1980s^(2,3). However, as elegantly noted by Dr. Steckelings in her accompanying introduction, the relationship is more complex, particularly in later life.

This Learning the Ropes feature aims to outline the evidence for sex/gender differences in hypertension incidence and pathogenesis. Importantly, it distinguishes itself from other such discussions by addressing regional considerations: Ching Siew Mooi (Malaysia) provides a perspective from Asia, Lebo Gafane-Matemane (South Africa) shares the perspective of Africa, Karin Manhem (Sweden) focus on Europe and Patricio Lopez-Jaramillo (Colombia) provide a Latin American perspective. Important regional differences are highlighted:

for example Dr. Gafane-Matemane highlights that in certain regions of Africa the prevalence of hypertension is higher in women than men. The authors also offer insights into region-specific sociocultural factors that may contribute to differences. Dr. Manhem notes better blood pressure control in younger ages in women and suggests that this may indicate sex/gender differences in care.

From a mechanistic perspective, Dr. Eva Gerdtz (Norway) provides an overview of sex/gender differences in organ damage and pathophysiology. In particular she discusses sex differences in left ventricular hypertrophy which she notes is “more prevalent and less modifiable by treatment in women than men” as well as arterial remodeling. Learning the ropes concludes with a look forward to translating evidence of sex differences in hypertension to clinical care. Dr. Nadia Khan (Canada) highlights the need for sex consideration in surveillance of hypertension, treatment initiation, and response to treatment.

Together these works provide a contemporary view of the impact of sex/gender on hypertension. This goes well beyond existing contributions that are often highly descriptive in nature. However, as each contribution notes, there remains a paucity of information to guide clinical management. Dr. Khan notes that “Clinical trial inclusion of women has been historically poor, and largely focused on Western populations...”. From a population health standpoint Dr. Lopez-Jaramillo notes that in Latin American countries “Improving hypertension management, particularly in youth male, will require understanding context-specific barriers that limit care and system-level changes directed at overcoming these barriers”. I would add that the majority of studies, particularly those focused on pathophysiology are focused on sex differences and that our appreciation of the role of gender is far less advanced. Nevertheless, work continues in

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this area and better understanding of the influence of sex and gender on hypertension should ultimately lead to improved care for all men, women, boys, girls and gender-diverse individuals.

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