GENDER DIFFERENCES IN EARLY MANIFESTATIONS OF ARTERIAL STIFFNESS: RESULTS FROM THE SARDINIA PROJECT

Moderated Poster Contributions
Hall C
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Background: Central arterial distensibility declines early in life, setting the stage for a dramatic increase in pulse pressure. However, the underlying alterations in maximal arterial expansion in systole and recoil in diastole, and gender differences in these alterations are not clear.

Methods: We analyzed longitudinal data of 3066 women and 2155 men (mean age 43 year, range 14-96) from the SardiNIA project. Brachial systolic (SBP) and diastolic (DBP) blood pressure were measured. B-mode ultrasound was used to measure common carotid systolic (SD) and diastolic (DD) diameters. Carotid strain (CS) was calculated as (SD - DD)/DD. Linear regression was used to assess changes in carotid parameters with aging adjusting for SBP and DBP.

Results: About 80% of the decline in CS occurred by the age of 50. (Fig1A). In men, this decline was due to a pronounced increase in DD (β=0.1, p<.0001) with no change in SD (Fig1B). Similarly, the decline in CS among women before the age of 30 was due to an increase in DD (β=0.03, p<.0001) with no change in SD; however, between the ages of 30 and 50, women had a decrease in SD (β=-0.03, p<.0001) with no change in DD (Fig1C). The smaller decline in CS after the age of 50 (Fig1A) reflected parallel increases in both SD and DD (Fig1B,C).

Conclusion: In both genders and adjusting for blood pressure, the early decline in CS was due to increasing DD and not decreasing SD suggesting initial impaired recoil rather than restricted expansion; however, the latter seems to subsequently develop in women.

Figure A) age-associated changes in carotid strain in men and women. B) age-associated changes in carotid systolic (SD), and diastolic (DD) diameters in men in the first 6 decades of age, adjusting for SBP and DBP, respectively. C) age-associated changes in carotid systolic (SD), and diastolic (DD) diameters in women, adjusting for SBP and DBP, respectively.