P39: ACUTE RESPONSES OF PULSE WAVE REFLECTION AFTER AEROBIC EXERCISE WITH DIFFERENT VOLUMES

Tainah Lima, Felipe Cunha, Walace Monteiro, Paulo Farinatti, Mário Neves


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Results: Central pressures and Alx were different between normotensive and hypertensive men after the two AE bouts as shown in table 1. Conclusion: Although both AE were able to reduce pulse wave reflection in hypertensive men, only the major volume has attenuated the increase in central aortic BP observed in the control session.

References

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INCREASED STIFFNESS IN THE DIGITAL ARTERIES OF ESSENTIAL HYPERTENSIVE WOMEN: THE FUCHSIA STUDY
Rosa Maria Bruno 1,2,3, Nicole Di Lascio 3, Saverio Vitali 3, Piercorvo Rossi 4, Rachele Gerhardini 3, Stefano Teddei 3, Francesco Failla 3, Davide Caramella 3, Lorenzo Ghiadoni 3
1University of Pisa, Italy
2INSEF U970, Paris, France
3Institute of Clinical Physiology, CNR, Pisa, Italy
4University of Pisa, Pisa, Italy

Rationale and Aim: Essential hypertension is characterized by extensive alterations of arterial geometry and mechanical properties: increased stiffness, dilation and wall of large arteries, increased thickness in muscular arteries, small artery remodeling. This study is aimed at exploring function and structure of the digital arteries of the hand, muscular arteries with an internal diameter of 500-1000 mm, easily accessible by ultrahigh frequency ultrasound.

Methods: 24 hypertensive women (HT) and 37 healthy controls (C) were recruited. 5’-videoclips of left palmar digital arteries were obtained by VevoMD (FUJIFILM, VisualSonics, Toronto, Canada), by means of a 70 MHz probe (axial-lateral resolution 30-65 μm). An automatic system (Cvsuite, Quipu srl; Pisa, Italy) was used to measure intima-media thickness (IMT) and diameter. Distensibility and stiffness were then calculated using left brachial pulse pressure (PP - oscillometric).

Results: HT and C had similar age (57 ± 11 vs 53 ± 11 years, p = 0.22), BMI (24.9 ± 4.6 vs 24.5 ± 4.2 vs kg/m², p = 0.80) and mean blood pressure (BP, 95 ± 12 vs 91 ± 12 mmHg, p = 0.24); HT showed slightly higher PP (54 ± 14 vs 47 ± 10, p = 0.07). Palmar digital lumen tended to be higher in HT (804 ± 201 vs 696 ± 191 μm, p = 0.10), while IMT was similar (120 ± 23 vs 125 ± 36 μm, p = 0.81). Distensibility was reduced (21.4 ± 18.2 vs 29.0 ± 18.8 kPa⁻¹, p < 0.05), while stiffness was increased (7.95 ± 0.22 vs 6.72 ± 2.11 m/s, p < 0.005).

Conclusions: This is the first report of the presence of altered mechanical properties (i.e. increased stiffness) in muscular arteries with lumen <1000 mm of essential hypertensive women. These findings suggest that increased hemodynamic load characterizing hypertension lead to a different vascular phenotype in each arterial segment.

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MASKED HYPERTENSION AND RETINAL VESSEL STRUCTURE AND FUNCTION IN YOUNG HEALTHY ADULTS: THE AFRICAN-PREDICT STUDY
Nthai Ramoshaba 1,2, Hugo Huismann 1,2, Leandi Lammertyn 1,2, Konstantin Kottiar 3, Aletta Schutte 1,2, Wayne Smith 1,2
1Hypertension in Africa Research Team (HART), North-West University, Potchefstroom, South Africa

historical and contemporaneous values of PP and MAP as well as age and heart rate, PP was significantly associated with PP₉, MAP₉ and PP₉ but not with MAP₉. In the sub-study in which historical values of PPw were available, PPw increased by 0.75 ± 1.42 m/s, over an average of 5.5 ± 1.7 years. The change in PPw was associated with MAP₉ and with PP₉ (β = 0.144, p < 0.001).

Conclusions: These results are consistent with strong dependence of PPw on contemporaneous BP but also historical values of pulse pressure which may drive arterial stiffening.