

Exercise Pressor Response in Hispanic Adults with Family History of Hypertension

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ABSTRACT

Family history of hypertension (FHH), being an unmodifiable risk factor, increases probability of developing hypertension and other cardiovascular diseases. The prevalence of hypertension in Hispanic/Latino (H/La) males is 50.3%, while it is 48.9% in non-Hispanic white (NHW) males and 57.5% in non-Hispanic black (NHB) males. Among adolescents aged 8 to 17, H/La youth has the highest incidence of hypertension as compared to all other races. It is evident that young normotensive adults with positive family history of hypertension (+FHH) exhibit exaggerated exercise pressor response. Additionally, a higher sympathetic activity to cold pressor test (CPT) was found in normotensive NHB adults with +FHH. However, the potential effect of +FHH in H/La population remains unexplored. **PURPOSE:** In this study we investigated the effect of +FHH on the pressor response during exercise and CPT in H/La adults with +FHH and negative family history of hypertension (-FHH). **METHODS:** In 5 H/La adults with +FHH (age = 24 ± 4 mmHg; BMI = 24 ± 3 kg/m²; MVC = 76 ± 9 kg) and 6 H/La adults with -FHH (age = 21 ± 0.4 years; BMI = 24 ± 1 kg/m²; MVC = 82 ± 10 kg), beat-to-beat blood pressure (finger plethysmography) and heart rate (ECG) were measured at rest and during 2 minutes of static handgrip exercise performed at 30% and 40% of their maximum voluntary contraction (MVC). Muscle metaboreflex was isolated by post exercise ischemia (PEI; supra-systolic cuff (220 mmHg) inflation on the exercising arm) for 2 minutes and 15 seconds. To perceive pressor response to a generalized sympatho-excitatory stimulus, CPT was performed for 2 minutes. **RESULTS:** Resting mean arterial pressure (MAP) was not different between groups (+FHH = 78 ± 6 mmHg; -FHH = 79 ± 8 mmHg; $p = 0.9$). The exercise pressor response at 30% (+FHH = 26 ± 7 mmHg; -FHH = 27 ± 8 mmHg) and 40% (+FHH = 46 ± 8 mmHg; -FHH = 37 ± 13 mmHg) of MVC was not different between the two groups. However, the adults with +FHH indicated a stronger trend for augmented pressor response during PEI following handgrip exercise at 40% of MVC (+FHH = 46 ± 4 mmHg; -FHH = 33 ± 10 ; $p = 0.07$). The cold pressor response was not different between the two groups (+FHH = 31 ± 6 mmHg; -FHH = 23 ± 15 mmHg). **CONCLUSION:** Hispanic adults with family history of hypertension exhibit augmented exercise pressor response.