عنوان مقاله:

Androgen Excess During Fetal Life Affects Rats Cardiac Function in Adulthood

محل انتشار:

پانزدهمین کنگره بین المللی زنان و مامایی ایران (سال: 1398)

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خلاصه مقاله:

Backgrounds: Developmental programming is a complex process whereby the hormonal, nutritional, and metabolic disturbances occurring during the critical period of intrauterine development lead to alterations in the developmental trajectory of the growing fetus. The origin of cardiovascular diseases may arise from suboptimal intrauterine environments such as disturbed hormonal milieu. We aimed to compare the effects of prenatal androgen exposure(PAE) on heart basal hemodynamic parameters and tolerance to ischemia/reperfusion(I/R) injury among PAE adult female and male rats.Material and Method: Pregnant Wistar rats in the experimental group(n=8) received 5 mg of testosterone by s.c. injection on the 20th day of pregnancy and controls(n=8) received solvent. Female and male offspring experimental (n=16) and control (n=16) rats were kept with ad libitum food and water. In adulthood, the hearts of rats were isolated and perfused in a Langendorff apparatus, values of the hemodynamic parameters including: left ventricular end-diastolic pressure(LVEDP), left ventricular systolic pressure(LVSP), left ventricular developed pressure (LVDP), heart rate(HR), rate pressure product(RPP) and peak rates of positive and negative changes in left ventricular pressure(±dp/dt) were continuously recorded before(baseline) and after myocardial I/R, using a power lab system.Result: At baseline: PAE adult males demonstrated significant higher amount of LVSP, LVDP, RPP and ±dp/dt, compared to their controls and PAE adult females($p<0.05$), while PAE adult females showed no significant differences compared to their controls. After I/R: In PAE adult males, LVSP, LVDP, RPP and ±dp/dt had significant decreasing trends per phases after I/R, compared to their controls and PAE females, while these decreasing trends were not statistically significant in PAE adult female rats vs. their controls. Conclusion:The impact of prenatal androgen exposure on adulthood cardiac function and tolerance to I/R is gender dependent, which may be partly explained by different cardiac effects of hyperandrogenism in males versus females. After prenatal androgen exposure, the baseline hemodynamic parameters of the hearts of adult males are increased; although they had less .tolerance to I/R, findings however not observed in females

کلمات کلیدی: