BLOOD PRESSURE (BP) DECREASES WITH THE THROMBOXANE A2 RECEPTOR ANTAGONISM IN MALE SHR, BUT NOT IN FEMALE SHR

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Both Thromboxane A2 (TXA2) and F2-isoprostane are thought to be agonists for the Thromboxane A2 receptor (ThR), and the androgenic steroids regulate the expression of ThR. The present study was performed to determine if the ThR plays a role in the hypertension in SHR. Male and female SHR, aged 12 weeks, were treated with a ThR antagonist, SQ29548 (1mg/Kg/d via osmotic mini-pump, or ethanol vehicle) 1 week. Prior to and on treatment days 3 and 6 BP was measured by tail plethysmography. On day 7 rats were anesthetized and mean arterial pressures (MAP) and renal function were measured. By day 6, systolic BP was reduced with the SQ29548 but not ethanol vehicle alone. These data were confirmed by direct measurement; MAP was decreased by 13% in SQ treated male rats compared with controls. In the female rats there was no significant difference. Renal function was not affected by SQ treatment. These data support a role for the ThR in the hypertension of male SHR. Future studies will be necessary to determine if the receptor agonist is TXA2 or F2 isoprostanes.

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Key Words: Thromboxane, Gender, SHR

THE ROLE OF GENDER, ENVIRONMENTAL AND PSYCHOSOCIAL FACTORS IN NON-DIPPING STATUS FOR BLOOD PRESSURE

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Environmental and psychosocial factors are recognized as important determinants of disease state expression. This is particularly so in African-Americans and is apparent during early developmental stages. Moreover, gender status provides an additional modifier of response to environmental and psychosocial factors particularly as relates to 24-hour hemodynamic patterns. This study examined the relationship between sex, social support, daily hassles, and ambulatory blood pressure non-dipping status (<10% decrease in blood pressure from awake to asleep), a risk factor for stroke and left ventricular hypertrophy. 151 normotensive, non-obese (BMI below 25), African-American adolescents (79 males, 72 females; ages 11-18 years) completed measures of social support (emotional) and daily hassles; and wore a 24-hr ambulatory blood pressure monitor on a single occasion. Adolescents were classified as dippers (>10% decrease in blood pressure from awake to asleep) or non-dippers (<10% decrease in blood pressure from awake to asleep), 69% and 74% of girls and boys, had a family history of hypertension, respectively. A greater percentage of boys than girls were identified as non-dippers based on diastolic blood pressure (25% vs. 10%, p<.05). Daily hassles were correlated with mean blood pressure dipping status (r=.20, p<.03); however, boys showed a stronger correlation between daily hassles and dipping status (r=.31, p<.003) than girls (r=.06, p=.ns). A significant sex by dipping status interaction (F=3.9; p=.050) indicated that girls who were classified as non-dippers (10.6 ± 5.1) reported lower levels of social support from family members than girls who were classified as dippers (15.5 ± 4.2). Boys reported similar levels of social support across dippers (15.3 ± 3.2) and non-dippers (14.5 ± 4.4). These findings suggest that non-dipping status is more prevalent among African-American boys and is associated with greater reports of daily hassles; and that girls may show a greater health benefit from receiving emotional social support than boys. These data suggest that gender issues enter into the cardiovascular risk profile of African-Americans at as early a juncture as adolescence if not sooner.

Key Words: Blood Pressure Non-Dipping Status, Social Support, Gender

MIXROALBUMINURIA ASSOCIATED WITH HOMOCYSTEINEMIA: INFLUENCE OF GENDER

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Homocysteine (Hcy) is a well-known risk factor for cardiovascular diseases. Moreover, microalbuminuria (Malb) is thought to be a marker for endothelial dysfunction. To assess the association between homocysteine levels and microalbuminuria, plasma creatinine and blood pressure (BP) we evaluated 55 microalbuminuric mild to moderate hypertensive patients (20 M/35 F). Women under evaluation were at premenopausal phase or on hormonal replacement therapy. Malb was defined as equal or higher than 15 μg/min and Hcy was considered elevated when its values were above 15 umol/l. Patients were withdrawn from their anti-hypertensive medications 4 weeks prior their assessments. After an overnight fasting, all patients had blood samples for Hcy, total cholesterol, triglycerides and glucose levels. A single overnight sample of urine was collected for Malb measurement. Our data showed that women were older than men (50.8±6.8 vs 45.7±10.8, p<.005) and had a higher BMI (29.3±4.0 vs 25.7±4.7, p<.05). Blood pressure levels were higher in men (151.6±7.0/102.1±5.4 vs 137.7±9.7/93.5±5.0, systolic and diastolic respectively, p<.05). In relation to lipid profile, glucose levels and Malb there were no statistical differences between two genders. Homocysteine was statistically higher in men (17.6±4.1 umol/ml) than women (11.6±3.3,umol/ml). A Spearman correlation showed that Hcy was associated only with blood pressure levels in the female group, while in men there was an association with Malb levels, blood pressure, creatinine, lipid profile (Table 1). We only detected a positive correlation between Hcy and BP values for women, while in men there was a correlation between Hcy levels, BP, Malb, creatinine and lipid profile. In conclusion, the lack of association between Hcy levels and Malb and lipid variables in women probably is due to estrogen action since all of the women evaluated were at premenopausal phase (n=10) or under hormonal replacement therapy (n=25). Therefore, estrogen activity protects women from hiperhomocysteineemia and their endothelial damage may be caused by other factors.

Key Words: homocysteine, Gender, Microalbuminuria

GENDER DIFFERENCES IN BLOOD PRESSURE IN ESTROGEN-DEFICIENT FORKO MICE

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Although estrogen has been implicated to have a protective role in cardiovascular disease, effects on the development of hypertension remain unclear. To address this, we investigated whether blood pressure is increased in female and male FORKO mice (follicle- stimulating hormone receptor knockout mice), which are estrogen-deficient, but have...