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Effects of moderate treadmill activity on cardiovascular factors in spontaneously hypertensive rats

Herve Kibwe Mwewa
University of KwaZulu Natal, South Africa

Introduction: Hypertension is a major health problem throughout the world because of its high prevalence and its association with increased risk of cardiovascular disease. Oxidative stress, trace element status and exercise have been demonstrated to play a major role in the pathogenesis of hypertension.

Aim: The objective of this study was to investigate the effect of an eight-week exercise regimen on the antioxidant and associated trace element status in the spontaneously hypertensive rat (SHR) model of hypertension.

Method: 16 SHR and 16 Wistar rats were randomly divided into an exercise (n=8) and a non-exercise (n=8). All the rats in the exercise group were subjected to a progressive treadmill exercise regimen for eight weeks. Blood pressure, blood glucose and body weight was recorded weekly. At the end of the study, C-Reactive Protein (CRP), trace elements were measured in the blood and Total Antioxidant Capacity (TAC) was measured in the skeletal muscle.

Result: Hypertension developed in both SHR groups only. Elevated CRP level in both SHR and Wistar exercised groups suggest an inflammatory response associated with hypertension and exercise. There were no significant compensatory increases in TAC during exercise in the SHR. Decreased levels of iron, selenium and manganese were also observed in the exercise groups.

Conclusion: This study reports that the pathological changes associated with oxidative stress are exacerbated when coupled with exercise in this model of hypertension.

Biography

Kibwe Mwewa has completed his Master's degree in Laboratory Medicine and Medical Sciences at University of KwaZulu Natal, South Africa. He is currently pursuing his PhD in the same field focusing on Pulmonary Hypertension.

hervekibwe@gmail.com

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