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Effect of Antihypertensive Treatment on Platelet Aggregation during Exercise

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OBJECTIVE

Platelet aggregation is the most efficient indicator of platelet activity and a well known risk factor for the development of thrombosis, the progression of atherosclerosis and the occurrence of acute ischemic events in hypertension. The aim of the study was to investigate: a) the effects of exercise on platelet aggregation in hypertensive patients, and b) the impact of five-month therapy with nebivolol vs quinapril on platelet aggregation during treadmill exercise.

DESIGN AND METHODS

We studied 32 patients with essential hypertension who were randomised in 2 groups: group N (13 men and 3 women, 44.37±6.7 years) received nebivolol 5 mg and group Q (13 men and 3 women, 44.5±8.51 years) quinapril 20 mg for five months. There were no statistically significant differences between the two groups regarding sex, age, body mass index or blood pressure. Treadmill exercise was performed before and five months treatment, using the modified Bruce protocol. Blood was drawn before, during and after treadmill exercise and platelet aggregation was measured using a

turbidometric method with ADP as an aggregating agent.

RESULTS

At baseline values with ADP in group N were 59.33±12.48% before the test and was reduced to 44.07±16.55% at peak exercise ($p<0.05$) and in group Q 60.06±11.77% before and 45.13±14.8% at peak ($p<0.05$). After treatment platelet aggregation values were in group N 57.35±10.13% before and were reduced to 43.8±16.71% at peak ($p<0.05$) and in group Q 53.81±10.48% before and reduced to 43.73±15.11% at peak exercise ($p<0.05$). In group N the 20% inhibition of platelet aggregation was further augmented to 27% after treatment ($p<0.05$).

CONCLUSIONS

Platelet aggregation decreased significantly in both groups during exercise. Nebivolol, a third generation b-blocker with nitric oxide mediated vasodilatory properties, resulted in an equal reduction of platelet aggregation with the ACE-inhibitor quinapril both before and during treadmill exercise, when compared with the corresponding pre-therapy values.