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Vessels and Endothelium

12.17 Flow Dependent Vasodilation of Brachial Artery: Effect of Treatment with a Calcium Antagonist or Thiazide Diuretic in the Essential Hypertensive Patient

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Introduction. It has been demonstrated that flow-mediated dilation (FMD) of large artery, a non-invasive method for the estimation of endothelial function, is reduced in uncomplicated hypertensive patients and can be improved by antihypertensive treatment.

Aim. To evaluate the effect of monotherapy with a calcium channel blocker (Barnidipine, B) or a diuretic (hydrochlorothiazide, HCT) on FMD in 40 hypertensive patients.

Methods. In all subjects, by a high-resolution ultrasound system, we measured the changes of brachial artery diameter during reactive hyperaemia (5 minutes) and after low-dose sublingual nitrate; brachial artery flow velocity was measured by pulsed Doppler. This procedure was repeated after 3 months of treatment with Barnidipine or HCT. A preliminary analysis in 21 patients (18 males, 3 females, age range 34-64 years) was performed.

Results. No difference between the two groups of treatment (Barnidipine, n=11 and HCT, n=10) was observed for age, clinic blood pressure (BP), plasma glucose, total and LDL cholesterol at baseline. A similar reduction in BP values was observed in the two groups (clinic SBP: -11.5 mmHg and -16.0 mmHg, in Barnidipine and HCT group respectively, p=ns; clinic DBP: -10.5 mmHg and -14.3 mmHg, in Barnidipine and HCT group respectively, p=ns). FMD was significantly increased during Barnidipine treatment while it did not change in patients receiving HCT (+0.8% in Barnidipine group and -1.4% in HCT group, p=0.02).

Conclusions. Our data suggest that a calcium antagonist may exert a more favourable effect than a diuretic on endothelial function in patients with essential hypertension.