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LONG-TERM EFFECTS OF MEDICAL THERAPY ON AUTONOMIC CONTROL OF HEART RATE IN PATIENTS WITH CONGESTIVE HEART FAILURE WITH OR WITHOUT HYPERTENSION
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Since reduced heart rate variability (HRV) is known to be a predictor of prognosis of congestive heart failure, we examined long-term effects of conventional medical therapy on HRV in 314 patients with congestive heart failure (62±1 years, NYHA classification 1 to 4), consisting with dilated cardiomyopathy, coronary artery disease, or hypertensive heart disease. Patients were randomly assigned to beta-blocker, angiotensin converting enzyme (ACE) inhibitor, dihydropyridine derivatives, dilatiazem, nitrate, or these combinations with or without digitalis and furosemide therapy. 48 patients were treated only by life style modification (LifeStyle). 24-hour ECG recordings were repeated before and after the therapy (mean duration: 76 weeks), and HF (0.15-0.4 Hz), TF(0.004-1 Hz) and LF (0.04-0.15 Hz) /HF ratio of HRV were calculated by maximum entropy method. Both HF and TF were significantly (p<0.01) deceased in LifeStyle while those in beta-blocker were significantly (p<0.01) increased. None of the interval changes in the rest of therapy groups was significant. Although none of the baseline values between groups before therapy was significant, both HF and TF were significantly (p<0.01) lower after therapy in dihydropyridine and nitrate groups than those in beta-blocker group. However, when dihydropyridine and nitrate were used as a combination drug with ACE inhibitor or beta-blocker, these differences vanished. In conclusion, long-term beta-blocker therapy only improves autonomic control of heart rate in patients with heart failure. Furthermore, dihydropyridine or nitrate may be useful only when these drugs were used as combination drug with ACE inhibitor or beta-blocker.

Key Words: ACE inhibitor, beta-blocker, heart rate variability

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COMPARISON OF HEMODYNAMIC EFFECTS OF NEBIVOLOL AND BISOPROLOL IN ESSENTIAL HYPERTENSION
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Nebivolol, the most selective clinically available antagonist of beta1-adrenergic receptors, has an additional vasodilator action in human forearm resistance vasculature in normal and hypertensive patients, and in patients with coronary artery disease. This has been attributed to activation of the L-arginine/nitric oxide pathway. The present investigation compared hemodynamic effects of nebivolol with those of another selective beta1-adrenergic receptor antagonist, bisoprolol. The study was approved by the local research ethics committee. 15 patients (11 men, 4 women age 29-69 years) with uncomplicated mild essential hypertension diagnosed by World Health Organisation criteria, consented to take part. The design was a double blind randomised crossover. Following a two week washout, subjects were randomised to receive nebivolol (5 mg po daily) or bisoprolol (10 mg po daily) for 2 weeks, followed by a 2 week washout and 2 weeks on the other treatment. Measurements were made at the end of each baseline and each active treatment period. Heart rate fell during active treatment (from 65±2 to 53±3 min^{-1} during bisoprolol, P<0.01 and from 64±3 to 59±3 min^{-1} during nebivolol). Blood pressure (by sphygmomanometry) fell (bisoprolol: 143±3/90±2 to 127±3/80±2; nebivolol: 144±4/92±2 to 131±3/83±3; each P<0.01) during active treatments to a similar extent. In contrast, systemic vascular resistance index (measured by bioimpedance) fell during nebivolol (from 2855±201 to 2646±186 dyn min^{-1}m^{-2}, P<0.01) but did not change significantly during bisoprolol treatment (baseline 2848±177, on treatment 2788±159 dyn min^{-1}m^{-2}). We conclude that nebivolol has a systemic vasodilator action in essential hypertension distinct from its beta1-adrenoceptor antagonist action.

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Key Words: vasodilator property, beta-receptors, nebivolol

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NEBIVOLOL, A BETA-1-SELECTIVE AND VASODILATING BETA- BlockER, REDUCES PLASMA VISCOSITY
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The aim of this pilot study was to investigate if under treatment with a beta blocker, Nebivolol, hypertensive patients showed an improvement in viscosity parameters. Nebivolol is a beta-blocker with vasodilating properties through an increased nitric oxide (NO) release in the endothelium. NO is known to have a positive effect on the rheological properties of the plasma.

Ten hypertensive patients (2 males) were included and laboratory parameters measured before and in mean 97 days after initiating treatment with Nebivolol. Other medication remained unchanged. Plasma viscosity (PV) was in mean 1.4284 (range 1.1802-1.5645, normal 1.23), the platelet aggregation factor (PAF) was in mean 1.382 (range 1.09-1.79, normal 1.00-1.06) before treatment with nebivolol. After treatment mean PV was significantly reduced to 1.3208 (p<0.05), PAF to a mean 1.113 (p<0.05).

Hypertensive patients have an elevated plasma viscosity, which in turn increases peripheral vascular resistance, especially if endothelial dysfunction already exits.

Nebivolol seems to have, besides its antihypertensive also a positive effect on plasma viscosity. This may be due to its increased nitric oxide release.

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Key Words: rheological properties, Nebivolol, nitric oxide release

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PERINDOPRIL AND INDAPAMIDE INCREASES ARTERIAL COMPLIANCE IN POSTMENOPAUSAL WOMEN
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Objective: Proximal arterial compliance may be a new therapeutic target in arterial hypertension. Disease. The aim of the current study was to annualize the effect of ACE-inhibitor perindopril and diuretic indapamide on pulse wave velocity at 50 postmenopausal hypertensive women without hormone replacement therapy.

Methods: The whole body arterial compliance (WBAC) and pulse wave velocity (P WV) was measured in postmenopausal hypertensive women (mean age 52±1.5 yr) at baseline and after 4 weeks treatment with perindopril (2-4 mg/day, 25 patients) or indapamide (2.5 mg/day, 25 patients). Also ambulatory blood pressure and lipids were studied at these time points.

Results: Postmenopausal hypertensive women had significantly higher WBAC and PWV than women at control group (30 women with arterial

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