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13.5 VENTRICULAR-ARTERIAL COUPLING DURING TREATMENT WITH BISOPROLOL AND BISOPROLOL/AMLODIPIN IN HYPERTENSIVE PATIENTS

Anna Bogomaz, Yulia Kotovskaya, Zhanna Kobalava
Peoples Friendship University of Russia, Moscow, Russia

Objective: To evaluate ventricular-arterial coupling in hypertensive patients after therapy with a beta-blocker and its fixed dose combination (FDC) with amlopinine.

Design and method: 28 patients (age 53.9±7.2, 20 males, BP 148.7±13.4/96.6±14.1 mmHg, HR 83.2±10.1 bpm) with untreated uncomplicated hypertension underwent simultaneous EchoG and blood pressure (BP) acquisition at baseline, after 4 weeks of bisoprolol 5-10 mg monotherapy and after 8 weeks after switching to FDC bisoprolol 5-10/amlopinine 5-10 mg. Doses were titrated to reach BP <140/90 mmHg. Arterial elastance (Ea) and LV elastance at rest were calculated as central systolic pressure (ESP)/stroke volume (SV) and ESP/end-systolic volume (ESV). Ventricular-arterial coupling (VAC) was assessed as Ea/Ees. Mechanical efficiency of left ventricle (ELV) and peripheral arterial resistance (PAR) were evaluated also.

Results: After monotherapy with bisoprolol BP was 146.1±15.3/85.3±11.3 mmHg (p<0.05 vs baseline), HR 99.8±7.7 (p<0.05 vs baseline), after FDC 132.1±11.7/76.23±11.1 mmHg and 64.5±7.0 bpm, respectively (all p<0.05 vs baseline). Bisoprolol decreased Ees from 4.45±1.9 to 3.67±0.98 (p<0.05). EA increased significantly. EAs increased significantly from 0.47±0.16 to 0.55±0.14 (p<0.05). Switching to bisoprolo/amlopinine FDC results in decrease of Ea from 1.88±0.39 at baseline and from 1.92±0.38 after bisoprolol monotherapy, PAR from 137.1±33.5 at baseline and from 129.9±3.6, respectively to 105.6±2.8. Ees did not change from that on bisoprolol. EA/Ees (0.45±0.1) returned to baseline values.

Conclusions: In hypertensive patients monotherapy with bisoprolol reduces initially increased Ees without negative effect on Ea and PAR and switching to bisoprolol/amlopinine FDC results in additional Ea reduction. Thus the study confirms potential benefits of bisoprolol/amlopinine in arterial hypertension.

13.6 SWITCHING TO BISOPROLOL/AMLODIPIN FDC ELIMINATES ADVERSE EFFECT OF A BETA-BLOCKER ON AORTIC PULSE PRESSURE AUGMENTATION

Anna Bogomaz, Yulia Kotovskaya, Zhanna Kobalava
Peoples Friendship University of Russia, Moscow, Russia

Objective: The aim of the study was to evaluate if combination with amlopinine eliminates the adverse effect of beta-blockers on aortic pulse pressure (PP) augmentation.

Methods: 28 previously untreated non-diabetic hypertensive subjects (age 53.6±5.7 years, 19 males) where treated bisoprolol 5-10 mg. If in 4 weeks BP >140/90 mmHg amlopinine 5 mg-10 mg was added to therapy to reach BP <140/90 mmHg. Before treatment, after monotherapy and after bisoprolol/amlopinin, applanation tonometry was done. The changes were considered significant if p<0.05.

Results: At the end of the study 23 patients were treated with bisoprolol 5/amlopinine 10 mg fixed dose combination, 5 – 10/10 mg. After 4 weeks of monotherapy brachial BP decreased from 153.9±1.8/83.7±3.5 to 146.7±8.3/85.1±3.4 mmHg, HR from 79.2±4.7 to 63.5±4.7 bpm (p<0.05).

At the end of the study BP was 129.1±5.6/74.3±4.9 mmHg (p=0.05 vs baseline and monotherapy period), HR 62.8±4.9 bpm (p=0.05 vs baseline). Baseline central BP was 143.2±8.2, PP 46.8±10.4 mmHg, augmentation index (AI) A0/H0 75 bpm 20.1±14%, PWV 10.5±0.1 m/s. After bisoprolol monotherapy the values were, respectively, 134.1±7.6, 44.2±7.3 mmHg, 27.1±16.1%, PWV 10.0±1.6 m/s. After further 4 weeks treatment with bisoprolol/amlopinine central SBP was 119.5±5.7 (p<0.05 vs baseline), PP 41.4±6.3 mmHg (p<0.05 vs baseline), A0/H0 75 bpm 21.9±6.5 % (p<0.05 vs baseline), PWV 9.6±1.0 m/s.

Conclusion: Monotherapy with bisoprolol increases central PP augmentation. Combining with amlopinine in a single pill eliminates the adverse effect of a beta-blocker on aortic PP augmentation and results in effective reduction of central SBP.