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688 The Effects of Ivabradine on an Isolated Non Innervated Langendorff Guinea Pig Heart

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ABSTRACT TITLE: THE EFFECTS OF IVABRADINE ON AN ISOLATED NON INNERVATED LANGENDORFF GUINEA PIG HEART

BACKGROUND: Ivabradine (IVA) is a novel bradycardic drug used in clinical practice. Ivabradine acts on the sinoatrial node by blocking the If channel responsible for the slow depolarisation current. Our aim was to investigate the electrophysiological and haemodynamic parameters of ivabradine on isolated guinea pig hearts.

METHODS: Male Dunkin Harley guinea pigs (N=6, 0.42-0.52kg) were culled by cervical dislocation, their hearts rapidly excised. The ascending aorta was then cannulated and perfused in the constant flow Langendorff mode with Tyrode solution at 20ml/min (37°C, pH = 7.4). Left ventricular pressure (LVP) is recorded by a pressure transducer connected to a fluid filled latex balloon inserted into the LV. Contact Monophasic Action Potential (MAP) electrode recorded the apical and basal left ventricular MAP duration (90% decay) during constant ventricular pacing (200ms CL). Effective Refractory Period (ERP) was obtained with right ventricular pacing using a single extra-stimulus protocol (S1 200ms CL). Ventricular Fibrillation Threshold (VFT) was measured as the minimum current required inducing sustained (> 10s) VF with burst pacing (30x30ms). Measurements were taken at baseline (BL), 0.1µM, 0.2µM, 0.3µM, 0.4µM, 0.5µM Ivabradine. Measurements during constant pacing (200ms CL) were taken at BL, 0.2µM Ivabradine. Data are shown as the mean ± SEM. One way ANOVA with Bonferroni post hoc test or student paired T-Test were used where appropriate. P < 0.005 was taken as significant.

RESULTS: 0.2µM Ivabradine reduced HR (207.7 ± 11 [BL] to 86.7 ± 6.4 [IVA]) and LVP (54.6 ± 7.6 [BL] to 23.1 ± 4.5 [IVA]) but prolonged ERP (116 ± 1.9 [BL] to 143 ± 2 [IVA]) and VFT significantly (11.7 ± 1.6 [BL] to 23.4 ± 1.0 [IVA]). During constant pacing, LVP remained constant with 0.2µM IVA perfused (54.6 ± 7.6 [BL] to 54.1 ± 4.5 [IVA]). During constant pacing, 0.2µM Ivabradine significantly prolonged both apical MAPD (111.50 ± 2.8 [BL] to 114.83 ± 3 [IVA]) and basal MAPD (121 ± 2.6 [BL] to 123.8 ± 3 [IVA]).

CONCLUSION: 0.2µM Ivabradine had significant effects on ventricular electrophysiology in the isolated guinea pig heart despite current literature suggesting If channels to be absent in guinea pig ventricles. The mechanism behind these electrophysiological ventricular effects requires further investigation.

689 Determination of vaso-regulators' concentration in diagnosis of essential hypertension in men and women

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ABSTRACT TITLE: DETERMINATION OF VASO-REGULATORS' CONCENTRATION IN DIAGNOSIS OF ESSENTIAL HYPERTENSION IN MEN AND WOMEN

BACKGROUND: The role of endothelin-1 (ET-1) as vasoconstrictor (VC) and marker of vascular endothelial dysfunction has been well studied, but the properties of vasodilator (VD) C-type natriuretic peptide (CNP) continue to be explored. We can assume that their ratio reflects the balance VD / VC.

METHODS: We have examined 119 men and 139 women, including 79 healthy men (mean age 54.64 ± 0.40 years) and 80 women (57.49 ± 0.48 years) of the control group. In 40 men (mean age 55.01 ± 0.15 years) and 50 women (56.91 ± 0.36 years) AH II-III degree was diagnosed. In all examined patients the levels of CNP and ET-1 were determined by immunoenzyme method. Also we have calculated their correlation index - CI (CNP/ET-1).

RESULTS: The quantity of CI in males of the control group was lower than in women: (1.39 ± 0.02 u) and (1.74 ± 0.04 u), respectively. The CNP level was higher in men, and ET-1 in females (p ≤ 0.05). Significant differences depending on the sex of the patients were not identified.

CONCLUSION: Changes in the levels of CNP and ET-1 in the blood of men and women were differently directed. CI was lower in hypertensive patients than in the control groups, indicating the predominance of vasoconstrictor concentration compared with healthy individuals. CNP/ET-1 index can be used to diagnose hypertension.