P.050: THE INSULIN SENSITIZER ROSIGLITAZONE IMPROVES ENDOTHELIAL FUNCTION IN PATIENTS WITH TYPE 2 DIABETES ON INSULIN


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FUNCTION IN PATIENTS WITH TYPE 2 DIABETES ON INSULIN

The insulin sensitizer rosiglitazone improves endothelial function mediating exercise induced changes in the pulse waveform.

Results: Pacing and NTG produced marked changes in central and peripheral waveforms, reducing central augmentation index from 40.4 ± 6.2 to 22.6 ± 8.9% and from 40.4 ± 6.2 to 12.7 ± 7.0% for pacing and NTG 100 mg/min respectively (P < 0.01). At baseline and during all interventions, there was a close correlation between central systolic blood pressure and absolute finger systolic pressure at the point of late systolic augmentation (R = 0.95, P < 0.0001).

Conclusions: These data suggest that central systolic blood pressure can be estimated directly from non-invasive finger pressure waveforms even during interventions such as pacing and NTG that produce a marked change in pressure waveforms.

P.049 EFFECTS OF INHIBITION OF NITRIC OXIDE SYNTHASE ON THE PERIPHERAL ARTERIAL WAVEFORM RESPONSE TO EXERCISE

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Introduction: Exercise reduces systolic augmentation in the peripheral pulse wave, an effect similar to that produced by the nitric oxide (NO) donor nitroglycerin (NTG). The changes produced by exercise persist into the recovery period for

Methods: Healthy volunteers (n = 10, 5 female, aged 19 to 33 years) participated in a 2-phase randomised controlled cross-over study. L-NMMA (6 mg/kg i.v. over 5 min) and saline placebo were given immediately before exercise, and during infusion of L-NMMA/saline immediately before and after exercise. Cardiac output (CO) and peripheral resistance (PR) were calculated from MAP and heart rate. Exercise produced a significant increase in CO and a decrease in PR (P < 0.05) and after exercise, heart rate, MAP and PR were similar in L-NMMA and saline placebo. However, L-NMMA attenuated the exercise induced fall in CO which was higher in L-NMMA compared to saline at 15 min in recovery (49.5 ± 5.3 vs. 36.0 ± 4.4, P < 0.02).

Results: Baseline, the sympathetic tone is high and arterial stiffness is increased. These data suggest that although endothelium derived NO has little effect in regulating PR during/after exercise, it may have a role in mediating exercise induced changes in the pulse waveform.

P.050 THE INSULIN SENSITIZER ROSIGLITAZONE IMPROVES ENDOTHELIAL FUNCTION IN PATIENTS WITH TYPE 2 DIABETES ON INSULIN

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Aim: Thiazolidinediones (TZDs) are insulin sensitizers used to improve glycaemic control in diabetic patients. TZDs have also been reported to improve endothelial function in obese patients with insulin resistance and in diabetic patients on oral treatment. However, little is known about the vascular effects of TZDs in patients with type 2 diabetes treated with insulin. The aim of this study was to assess the effect of rosiglitazone on endothelial function in type 2 diabetic patients treated with insulin.

Methods: Thirty-one diabetic patients without known coronary artery, cerebrovascular or peripheral arterial disease, who were already on an insulin regimen, were randomized into 2 groups; no treatment was added in group A (n = 14), while rosiglitazone 4 mg/day (n = 17) for 6 months. Flow-mediated dilatation (FMD) in the brachial artery was assessed in all patients, at baseline and at follow-up.

Results: At baseline, the 2 groups did not differ in age (mean ± standard deviation (SD), 67.1 ± 6.4 years, respectively, p = ns), or any measured variable. In group A there were no significant changes at 6 months in any variable except for diastolic blood pressure that dropped from 79.7 ± 7.2 to 71.2 ± 12 mmHg (p < 0.05). In group B, a significant reduction in glycated hemoglobin (from 8.8 ± 1.1 to 7.8 ± 1.0%, p = 0.0005) and fasting plasma glucose (from 164 ± 164 to 144 ± 61 mg/dl, p < 0.05) was observed at 6 months, while FMD significantly improved from (1.3 ± 1.6 to 2.98 ± 1.80%, p < 0.005).

Conclusions: In insulin-treated type 2 diabetic patients, treatment with rosiglitazone for 6 months has a beneficial effect on glycemic control and endothelial function.

P.051 INHIBITION OF ENDOTHelial FUNCTION WITH NON-INVASIVE METHODS IN DIFFERENT CARDIOVASCULAR DISEASES

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The aim of our study was to evaluate microvascular reactivity and arterial stiffness with non-invasive methods in patients with different cardiovascular risk factors. Following blood pressure measurement, skin microcirculation was studied with laser Doppler flowmetry (Periflux 5001). The effect of local heating (LH; 44ºC, 1 min) and the postocclusive reactive hyperaemia (PORH; 220 mmHg, 3 min) were measured. Arterial stiffness was evaluated with the newly developed TensoClinic Arteriograph instrument which calculate the pulse wave velocity (PWV, m/s) and augmentation index (Aix, %). Healthy controls (CONT; n = 13), patients with essential hypertension (EH, n = 13), with essential hypertension and peripheral artery disease (EH+PAD, n = 22), and essential hypertension and 2-type diabetes mellitus (EH+DM, n = 25) were measured. Pulse pressure (PP) was higher in EH+PAD (62.8 ± 3.2 mmHg, p < 0.05) and EH+DM (67.6 ± 3.1 mmHg, p < 0.001) compared with CONT (52.5 ± 3.4 mmHg). Aix, PWV and the PORH were significantly different in healthy controls (62.11 ± 7.01 m/s, 393.77%, resp.) compared to the patient groups. These parameters were significantly different in the EH (-34.23%, 7.91 m/s, 292.77%, resp.) and EH+DM (-62.11%, 7.01 m/s, 393.77%, resp) compared to the CONT group.

Background and Aim: Large artery damage is a major contributor factor to cardiovascular morbidity and mortality of patients with hypertension. As shown ASCOT and other study, beta-blockers appear to be less effective than other drugs in improving outcome in hypertensive patients, and a potential explanation may be that beta-blockers are less effective in reducing arterial stiffness. However, the aim of this study was to prove otherwise while assessing the direct effect of cardioselective beta-adrenoceptor blockers (betaxolol) on arterial distensibility in patients with mild, moderate and severe hypertension.

Materials and Methods: 50 hypertensive patients (mean age 54.7 ± 14.3 years, 28 male, 28 female) received betaxolol in individual titrated doses 10-40 mg (mean dose 14.7 ± 6.8 mg) daily for 3 months. The examination comprised routine tests, ECG, blood glucose, total cholesterol, triglycerides. The assessment of arterial stiffness was done by way of measuring brachial-ankle pulse wave velocity (baPWV). Systemic arterial compliance was estimated through brachial Augmentation Index (AI). Endothelial function was calculated based on flow-mediated dilatation (FMD) parameters.

Results: The treatment produced a significant reduction in systolic (by 6.5%, P < 0.005) and diastolic BP (13.3 mmHg). No significant change of baPWV (by 8.1%) and increase of FMD (by 10.9%) was observed. There was an insignificant rise