THE EFFECT OF ORAL BERAPROST SODIUM, A PROSTAGLANDIN I(2) ANALOGUE, ON MICROVASCULAR DYSFUNCTION IN HIGH-RISK DIABETIC PATIENTS: A DOUBLE-BLIND, RANDOMIZED, CONTROLLED TRIAL

ACC Poster Contributions
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Background: Beraprost sodium (BPS) is a new stable, orally active prostaglandin I2 analogue with antiplatelet and vasodilating properties. It has been widely used for the treatment of pulmonary hypertension and atherosclerotic peripheral arterial disease (PAD), but its efficacy in peripheral microvascular dysfunction has not been established. We designed a placebo-controlled, double-blind, randomized trial of BPS in patients with symptom of microvascular dysfunction in high-risk diabetic patients.

Methods: In this placebo-controlled, double-blind, randomized trial (conducted from Oct 2009 to October 2010), 99 patients (male 41%, 60 ± 6 years) with symptoms of microvascular dysfunction but without evidence of PAD were randomized to receive BPS (40 microgram, tid) or placebo for 8 weeks. Blood was sampled for routine chemistry at baseline and at 8 weeks. All patients underwent temperature rebound (TR) and nadir to peak (NP) as an objective index of vascular reactivity using digital thermal monitoring device (Vendys, Endothelix Inc., Houston). Intensity and frequency of symptoms - pain, burning sensation, paresthesia and numbness - were recorded as a subjective index at inclusion and at the end of the study. The primary end point was the improvement of total symptom score (TSS), TR and NP above baseline.

Results: At 8 weeks of treatment, the change of TR and NP did not reach statistical significance of differences between BPS and placebo (TR: 0.04 ± 0.55 vs. 0.08 ± 0.51 °C, p=0.74; NP: 0.26 ± 0.56 vs. 0.27 ± 0.63 °C, p=0.95). However, the change of TSS in BPS group showed significant improvement compared with placebo group (2.80 ± 2.48 vs. 1.60 ± 1.94 points, p=0.009).

Conclusions: In diabetic patients without PAD, this once daily BPS improved subjective symptoms significantly over 8 weeks. However, it failed to improve objective parameters such as TR and NP. The beneficial effects of beraprost on symptomatic microvascular dysfunction in high-risk diabetic patients should be confirmed in long-term large clinical trials.