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QUINAPRIL AND LIPOIC ACID IMPROVE ENDOTHELIAL FUNCTION AND REDUCE MARKERS OF INFLAMMATION: RESULTS OF QUINAPRIL AND LIPOIC ACID IN THE METABOLIC SYNDROME (QUALITY) STUDY

ACC Poster Contributions
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Authors: *Bobby V. Khan, Syed T. Rahman, Tahir Haque, Nadya Merchant, Atlanta Vascular Research Foundation, Atlanta, GA, Emory University School of Medicine, Atlanta, GA*

Background: We sought to determine whether a combination of an ACE inhibitor and the nutriceutical alpha-lipoic acid (ALA) regulates endothelial function and markers of inflammation in obese diabetic patients with Stage I hypertension.

Methods: 40 obese diabetic patients with Stage I hypertension that met the ATP III criteria for the metabolic syndrome were treated in a crossover fashion and in a double blinded manner to quinapril (40 mg/day) for 8 weeks or quinapril + ALA (600 mg/day) for 8 weeks. We measured 24 hour collection of urinary albumin and serum markers of adiponectin and leptin. We measured endothelial dependent flow mediated dilation in these patients (FMD).

Results: There was a change of metabolic parameters in both study groups after 8 weeks of therapy. In comparison to baseline, 24 hour urinary albumin decreased by 27 percent in the quinapril group ($p=0.011$ vs baseline) and 48 percent in the quinapril+ALA group ($p<0.005$ vs baseline and quinapril group). Levels of serum adiponectin increased by 17 percent ($p<0.05$ vs baseline) and serum leptin decreased by 19 percent in the quinapril group ($p<0.05$ vs baseline). Furthermore, these findings were augmented in the quinapril+ALA group; there was an increase in serum adiponectin levels by 33 percent ($p<0.005$ vs baseline and placebo) and a reduction of serum leptin levels by 40 percent ($p<0.005$ vs baseline and placebo). Also, in comparison to baseline, the FMD was increased by 22 percent in the quinapril group ($p=0.055$ vs baseline) and by 40 percent in the quinapril+ALA group ($p<0.005$ vs baseline; $p=0.021$ vs quinapril).

Conclusions: In diabetics with hypertension, quinapril improves endothelial function and has a favorable effect on biomarkers of obesity. Moreover, this effect is strongly potentiated with a combination of ALA and quinapril. These results may attenuate progression of pathophysiology seen in the metabolic syndrome.