Endothelial function, insulin resistance, adiponectin level in hypertensive females with rheumatoid arthritis and its correction with L-arginine aspartate

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Hypertension (HT) and rheumatoid arthritis (RA) are regarded as conditions associated with higher risk for cardiovascular disease. L-arginine improves endothelial function and thereby is expected to be used in the prevention of cardiovascular disease. In addition, data exists that L-arginine aspartate can reduce insulin resistance and affects on the exchange of adipose tissue.

We aimed to evaluate the effects of oral L-arginine supplementation on endothelial function, insulin resistance, adiponectin level in HT females comorbid with RA.

112 females with mean age – 53.8 [49.6; 57.5] years were enrolled. Pts were randomized to study subgroup (n=58) received L-Arginine aspartate 30 ml/day during 4 weeks in addition to standard treatment. Control subgroup pts (n=54) received only the standard treatment. The levels of adiponectin, insulin were measured using ELISA kit test, insulin resistance was estimated using HOMA2 index. Endothelial-dependent flow mediated vasodilatation (EDVD) by D. Celermajer method was performed. All measuring were done at baseline and after 4 weeks. Statistical analysis included non-parametric methods with p value < 0.05.

EDVD improved by 59.9% (p=0.001) in L-arginine treatment group, in compare in control group – by 21.7% (p>0.05). Endothelial function had been normalized in 70.7% (p=0.03) and 18.5% (p=0.04) pts study and control group respectively. After 4 week L-Arginine supplementation the level of insulin resistance was significantly decreased by 10.4% (p=0.01) in the treatment group. In pts with EDVD achieving = 10% HOMA2 index decreased by 29.6% (p=0.02). The adiponectin level was significantly increased by 12.3% (p=0.001) in L-arginine treatment group.

Oral L-arginine supplementation is positively impacts on endothelial dysfunction, peripheral insulin resistance, adiponectin level in HT pts with RA and can improve the cardiovascular prevention in these pts.