

Mitochondria, Metabolism and Heart Failure

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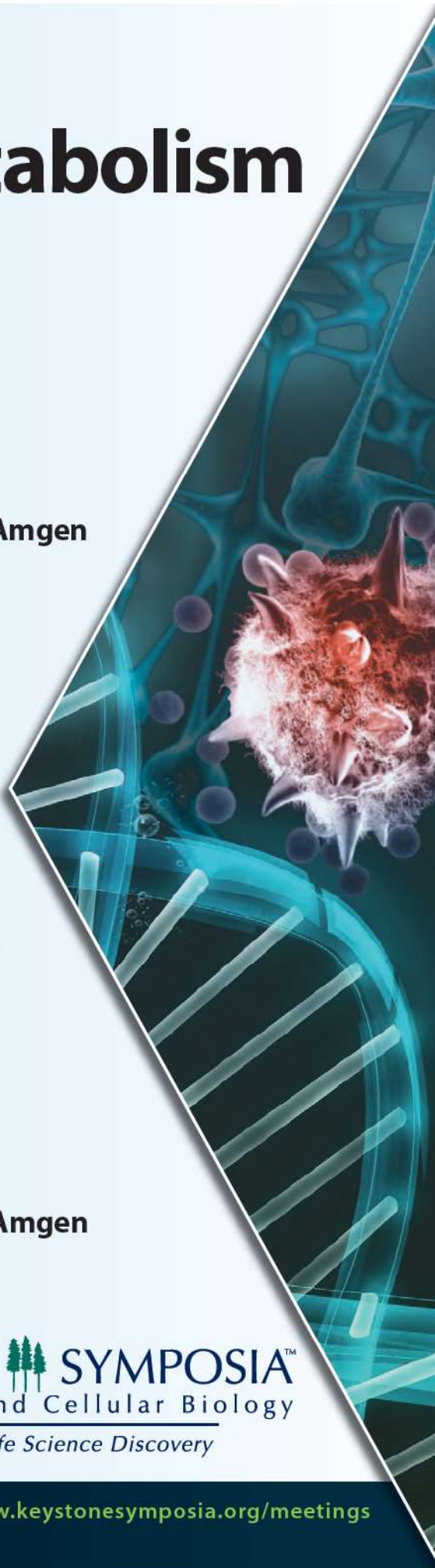
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J6 3010 Remodeling of Target Organ in Patients with Essential Hypertension in Combination with Obesity and Diabetes

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Combination of essential hypertension (EH), type 2 diabetes mellitus (DM2) and obesity is associated with increased risk of cardiovascular events. Remodelling of target organs in hypertensive patients with combined pathology remains poorly investigated. The aim of the study was a comparative study of the structural and functional state of heart, vessels and liver in patients with isolated EH and in terms of its combination with DM2 or obesity. We examined 158 patients aged from 40 to 55 years old: 30 hypertensive patients without DM2 with normal body weight; 35 hypertensive patients with DM2 and normal body weight; 35 hypertensive patients without DM2 with overweight or obesity 1 degree; 38 hypertensive patients with DM2, overweight or obesity 1 degree; 20 almost healthy patients with body mass index (BMI) 18-24.9 kg/m². The patients in all these groups had a saved ejection fraction of the left ventricle (LV). Not depending on BMI the patients with EH and DM2 in the comparison with hypertensive patients had different values of thickness of the intima-media in the carotid arteries (which were significantly higher), different pulse wave velocity in the great vessels, the size of the cavities and myocardial mass of the LV, the integral index of diastolic filling - E/e (integral ratio of maximum speeds of early diastolic filling according to spectral and tissue Doppler studies), the index of rigidity of the liver parenchyma according to shift-wave elastography and significantly lower value of endothelium-dependent vasodilatation of the brachial artery ($p < 0,05$). Even a slight increase in BMI (not higher than 34.9 kg/m²) was associated with a deterioration of endothelial function and structural and functional properties of heart, blood vessels, liver, which is more pronounced in terms of comorbidity.
