Abstract:
Impairment of the renal dopaminergic pathway has been shown to result in essential hypertension. The Organic Cation Transporter 2, OCT2 (SLC22A2), has been implicated in renal dopamine handling as well as in the inactivation of circulating catecholamines and is supposed to be involved in blood pressure regulation. This study investigated the association of the OCT2 Ala270Ser polymorphism with essential hypertension and its impact on blood pressure status in 607 Caucasian patients who underwent left heart catheterization. Clinical characteristics and diagnosis were recorded and blood pressure was determined by intravascular measurement. A comparison of genotypes revealed that patients with the Ser270 allele were less frequently affected by the clinical diagnosis of hypertension than homozygous carriers of the wild type allele Ala270 (Kruskal Wallis test, p = 0.028). This relation was even more pronounced in the subgroup of patients without diabetes mellitus (Kruskal Wallis test, p = 0.013). In summary, the first data on OCT2 are presented in the context of a candidate gene analysis. The Ala270Ser polymorphism was significantly associated with essential hypertension in the present sample. This study further suggests a function of OCT2 in blood pressure homeostasis and points to the potential role of the transporter in the development of essential hypertension.