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More severe clinical course of cardiovascular dysfunction in intensive care unit patients with the 894TT *eNOS* genotype

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ABSTRACT. The endothelial nitric oxide synthase (eNOS) plays an important homeostatic role in the cardiovascular system (CVS) by maintaining appropriate blood pressure through production of nitric oxide. The 894TT genotype of 894G>T (Glu298Asp, rs1799983), a polymorphic variant of *eNOS*, has been associated with several vascular diseases. On the basis of this strong relationship, we monitored daily 585 critically ill adult patients according to their degree of CVS dysfunction and investigated their disease progression by the 894G>T genotype. To obtain information of the general population, we obtained the 894G>T

genotypic and allelic frequencies in a random group of 149 healthy subjects. The patients were genotyped for the *eNOS* 894G>T polymorphism and daily evaluated according to their degree of CVS dysfunction through the Cardiovascular Sequential Organ Failure Assessment (SOFA) score. The mean value of the global CVS dysfunction score was significantly higher in 894TT patients (1.35 ± 0.57) than in non-894TT patients (1.23 ± 0.37; P = 0.035). This score remained significantly higher in 894TT patients, even in different patient clusters (all patients, septic, and non-septic patients) during the 1st week at the intensive care unit (1.86 ± 0.8 versus 1.63 ± 0.62, P = 0.005; 2.32 ± 0.10 versus 2.06 ± 0.08, P = 0.009; 0.84 ± 0.09 versus 0.64 ± 0.08, P = 0.027; respectively). This result shows that the mean values of the cardiovascular SOFA score were higher in 894TT patients in all subgroups. The present study provides evidence that the 894TT *eNOS* genotype is associated with a higher degree of CVS dysfunction in critically ill patients.

Key words: eNOS; 894G>T SNP; Genetic risk factors; SOFA score; Cardiovascular system dysfunction; Critically ill patients

