

THE INFLUENCE OF CAT-262 C/T POLYMORPHISM ON CATALASE ACTIVITY IN PATIENTS WITH ISCHEMIC STROKE

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Although there is a disturbance of oxidative stress markers in acute ischemic stroke(AIS), genetic contribution of -262C/T polymorphism of catalase (CAT) gene on plasma CAT activity in this disease is not yet established.

The aim of this study was to investigate the distribution of CAT-262C/T polymorphism in AIS patients compared to controls, as well as to evaluate whether this polymorphism can influence plasma CAT activity.

A total of 34 patients with AIS and 32 healthy volunteers were screened for the CAT- 262C/T gene polymorphism using the polymerase chain reaction–restriction fragment length polymorphism method (PCR-RFLP). Plasma CAT activity was determined using spectrophotometric method according to Goth.

Although the patients with the diagnosis of AIS had a higher frequency of polymorphic -262T allele in comparison to the group of healthy subjects, the difference was not statistically significant ($p = 0.117$). CAT activity was significantly lower in the patients (12.95 ± 2.86 kU/L) compared to the controls (25.58 ± 13.50 kU/L, $p < 0.001$). The patients carriers of the -262T allele, showed significant decrease of plasma CAT activity (11.93 ± 2.82 kU/L) compared to the patients with genotype -262CC (13.99 ± 2.59 kU/L, $p = 0.039$).

This is the first study examining the CAT-262C/T polymorphism and its influence on plasma CAT activity in AIS. Bearing in mind that the presence of -262T allele in AIS patients significantly decreased plasma catalase activity compared to CC genotype carriers, further studies should be focused on the testing of the potential protective role of the -262CC genotype in ischemic stroke.

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Key words: acute ischemic stroke, catalase, CAT-262C/T polymorphism