

THE INFLUENCE OF ACE INHIBITORS TREATMENT ON ANEMIA PARAMETERS IN PATIENTS ON MAINTENANCE HEMODIALYSIS

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Angiotensin-converting enzyme inhibitors (ACEI) are commonly prescribed to chronic kidney disease (CKD) patients due to their beneficial effect on the cardiovascular system. It is not completely understood whether ACEI treatment has an influence on anemia parameters in hemodialysed (HD) patients.

The aim of this study was to investigate the correlation between use of ACEI and anemia parameters in HD patients receiving erythropoiesis-stimulating agents (ESA).

This cross-sectional study included 114 HD patients divided into two groups: ACEI antihypertensive treatment group and other antihypertensive treatment group (calcium the antagonists, β blockers). According to the equivalent dose of ACEI, patients were subdivided into three subgroups: I subgroup (low dose of ACEI <10mg/day), II subgroup (median dose of ACEI between 10 and 20mg/day) and III subgroup (high dose of ACEI >20mg/day).

ACEI antihypertensive treatment group had statistically lower number of red blood cells (RBC) (3.17 ± 0.39 vs. 3.33 ± 0.29 mmol/L, $p=0.016$), hemoglobin level (98.68 ± 12.06 vs. 104.94 ± 7.77 g/dL, $p=0.001$) and hematocrit (29.35 ± 3.45 vs. 31.19 ± 2.27 , $p=0.002$) compared to the other antihypertensive treatment group. According to ACEI dosage, there were no significant differences between all three subgroups in the values of anemia parameters and mean arterial pressure (MAP). The statistical difference between subgroup I and non-ACEI group was found in MAP value ($\chi^2=5.143$, $p=0.023$). The statistical differences between subgroup II and non-ACEI group were found in the number of RBC, hemoglobin levels, hematocrit and MAP ($\chi^2=4.980$, $p=0.026$; $\chi^2=8.176$, $p=0.004$; $\chi^2=9.013$, $p=0.004$; $\chi^2=4.393$, $p=0.036$, respectively) and between subgroup III and non-ACEI group in hemoglobin level, hematocrit and MAP ($\chi^2=4.525$, $p=0.033$; $\chi^2=4.317$, $p=0.038$; $\chi^2=8.733$, $p=0.003$, respectively).

Our study demonstrates that ACE inhibitors treatment negatively correlates with anemia parameters in HD patients. The determination of an adequate dosage of ACEI to provide satisfactory cardioprotection, but not to jeopardize erythropoiesis, should be a therapeutical goal. *Acta Medica Medianae 2017;56(3):107-115.*

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