Category :**Sepsis: biomarkers**

A166 - ***Decreased survival of sepsis patients with diabetes associates with single-nucleotide polymorphism A (-777)>T of angiotensin II type 1 receptor gene AGTR1***

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Introduction:

Dysregulation of blood pressure significantly impacts the course of sepsis, especially septic shock. The *AGTR*1 gene encodes angiotensin II receptor type 1, which affects the vascular tone and contributes to septic shock [1]. Our study aims to define whether the *AGTR*1 polymorphism contributes to the course and outcomes of sepsis in patients admitted to the city hospital ICU facility.

Methods:

Study cohort included 157 ICU patients diagnosed with sepsis (SEPSIS-3, 2016); 66 patients were diagnosed with diabetes as major comorbidity. Functional *AGTR*1 rs275651 polymorphism [2-3] was studied using a polynucleotide tetra primer set to amplify gene fragments followed by the analysis of PCR products by 2% agarose gel electrophoresis.

Results:

The study revealed no differences in septic shock and lethality in patients with no diabetes differing in AGTR1 rs275651 genotypes. The septic shock occurred more frequently in patients with diabetes and minor T allele (AT and TT genotypes) than in homozygotic carriers of *AGTRI* AA and diabetes: P=0.006 (Fisher test), odds ratio (OR) 11.692. There were no differences in shock during ICU hospitalization between AA genotype carriers vs. allele T carriers in a cohort of sepsis patients with no diabetes (n=91, p=0.8). Significant differences in lethality between diabetic sepsis patients and non-diabetic patients (Chi-square 7.698 (Yates); OR=2,76, 95% CI: 1.389 – 5.484, P=0.006) were due to significantly increased lethality in diabetes patients with AT or TT AGTR1 genotype: OR=11.034, P=0.007 by Fisher test (Figure 1). T allele carriers with sepsis and diabetes experienced increased SOFA and CIRS values.

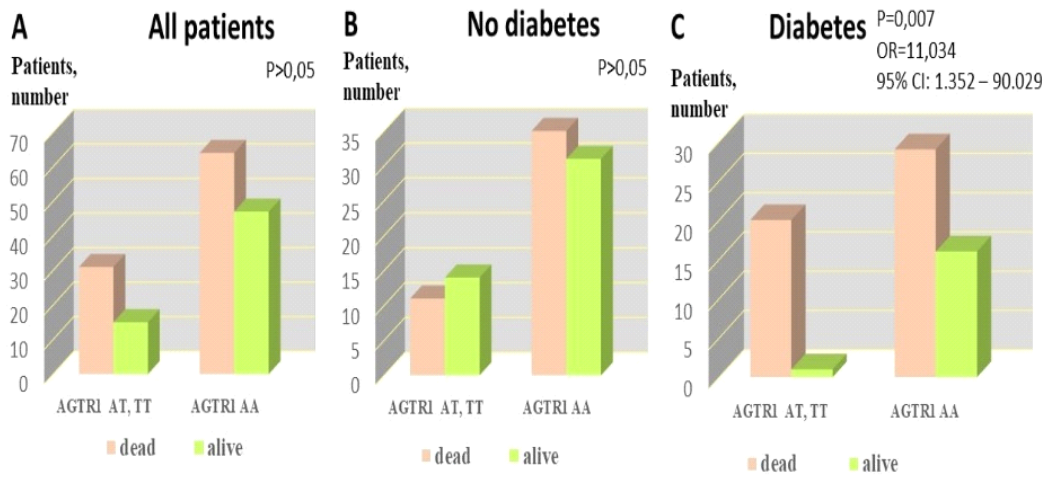
Conclusion:

In sepsis, patients with diabetes minor mutation A>T within *AGTR*1 rs275651 associates with shock and increased lethality, vascular comorbidity, and organ failure**.**

References:

References: 1.Correa TD et al. Critical Care 19:98-103. 2. Brugts JJ et al.European Heart Journal 31:1854-1864, 2010. 3. GhafilF.A. et el.Indian J Clin Biochem. 36:81-87, 2021.

Image :



Poor survival of patients with diabetes and sepsis associates with allele T rs275651 AGTR1