Proceedings of International Conference on Educational Discoveries and Humanities
Hosted online from Plano, Texas, USA.
Date: 1st May, 2023
ISSN: 2835-3196 **Website:** econferenceseries.com

CLINICAL AND GENETIC FEATURES OF THE COURSE OF TYPE 2 DIABETES MELLITUS IN THE BACKGROUND OF CARDIOVASCULAR DISEASES AFTER COVID-19

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During the COVID-19 pandemic, many prominent studies have confirmed a direct relationship between the severity of infectious disease and a history of diabetes mellitus. A meta-analysis of 8 studies involving almost 50 thousand patients with COVID-19 showed that diabetes mellitus (DM) ranks second among the most common comorbidities after coronary artery disease and arterial hypertension. In the pathogenesis of the development of DM, there are metabolic, hemodynamic, hemostasis, and genetic changes [2].

The most important risk factors of COVID-19 are Diabetes Mellitus, hypertension, and especially cardiovascular disease (CVD), which influence the severity and mortality of the disease. The severe effect on life is not the infection but COVID-19 complications [1]. The intense course of COVID-19 in patients with diabetes mellitus against the background of cardiovascular pathologies is associated with the development of endothelial dysfunction, which served to start our research in this direction and to establish a connection between the course of type 2 diabetes mellitus and the role of the C3872T polymorphism of the CRP gene in this pathological process.

The study aims: To study the role of the C3872T polymorphism of the CRP gene in developing endothelial dysfunction in patients with type 2 DM who underwent COVID-19.

Materials and Methods. The study involved 105 patients with type 2 DM who had experienced COVID-19, and all participants' venous blood was collected for isolating DNA. Participants were divided into two groups. The first group included 75 patients with CVD; the second group was 35 without CVD. As a control group, 104 healthy donors participated.

An adapted phenol-chloroform extraction method was used to isolate DNA from peripheral blood. Genotyping was performed using SintolnPFnpF reagent kits (Russia) according to the manufacturer's instructions; amplification was performed on a Rotor-Gene 6000 thermal cycler (Corbettresearch, Australia). Additionally, enzyme immunoassay studied D-dimer and von-Willebrand factor to evaluate endothelial dysfunction in patients.

Results and Discussion. To study the frequency of the C3872T polymorphism of the CRP gene in the development of endothelial dysfunction in patients with type 2 DM, a genetic study was conducted, which showed that unfavourable genotypic variants of the C3872T gene of the CRP gene were significantly more common among patients with type 2 DM with cardiovascular pathology who underwent COVID-19 for compared with the control group. When considering the frequency of distribution of genotypes, it was found that in the first group, the heterozygous C/T genotype was determined in 38.6% (n-29) of patients, and in the second group, 40% of those who did not survive covid-19 (n-12). An analysis of the distribution frequency of C3872T genotypes of the CRP gene showed that the mutant T/T genotype was more common in the group of patients with type 2 diabetes with CVD who underwent COVID-19 in 18.6% (n-14) of patients compared with the group with type 2 diabetes without CVD who did not survive COVID-19 in 6.6% (n-2) of patients.

Conclusion. Thus, a significant association of unfavourable genotypes in the development of endothelial dysfunction in patients with type 2 diabetes with CVD was revealed, which leads to an increase in the severe course and adverse outcomes in patients infected with covid-19. In the Uzbek population has been established that a pronounced association of C3872T polymorphism of the CRP gene with the risk of developing cardiovascular complications after undergoing COVID-19.

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