# COVID-19 and Its Relation with Hyperglycemia and Diabetes Mellitus

Mohammad Mehdi Sobhani Manesh[1*], Zahra Rakian[1], Yasin Arianezhad[2], Ali Arianezhad[1]

[1]Student Research Committee, Dezful University of Medical Sciences, Dezful, Iran
[2]Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

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***Corresponding Author:**
Student Research Committee, Dezful University of Medical Sciences, Dezful, Iran

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**ABSTRACT**

**Introduction:** Diabetes is one of the most common comorbidities in people with COVID-19 and is associated with an increased risk of severe COVID-19 and mortality. A slight increase in glucose is also expected in COVID-19 patients, and even in people without diabetes, it is associated with worse outcomes, which recent studies have also suggested. This study aimed to investigate the relationship of COVID-19 with hyperglycemia and diabetes mellitus.

**Search Strategy:** This systematic review was conducted in PubMed, Scopus, Science Direct, and Google Scholar search engines with predefined search terms “consequences after SARS-CoV-2 infection”, “COVID-19”, “metabolic syndromes”, “diabetes”, “hyperglycemia”, and “insulin resistance”. Articles in English, which examined patients over 18 years of age with residual clinical symptoms and biochemical changes at least one month after recovery from COVID-19, from December 1, 2019, to January 30, 2022, were included in the study.

**Results:** A total of 1357 records were searched. After removing duplicates, 615 articles reached the stage of title review and abstract review. After reviewing the full text of the articles, 45 articles were included in the study. Several hypotheses were proposed to explain the relationship between diabetes and COVID-19. A possible mechanism for altered glucometabolic control is SARS-Cov-2 damage to the pancreas. Chronic hyperglycemia can compromise innate and humoral immunity. Differential expression of ACE2 in the lungs of patients with diabetes makes them more susceptible to COVID-19.

**Conclusion and Discussion:** This study demonstrates that people over the age of 18 who are infected with COVID-19 are at increased risk of developing post-COVID-19 syndrome.

*Keywords:* COVID-19, Diabetes mellitus, Hyperglycemia, Metabolic syndromes

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