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Editorial

Relationship between COVID-19 and Diabetes Mellitus

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The global pandemic of Coronavirus Disease 2019 (COVID-19), triggered by the rapid spread of a novel coronavirus strain termed "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), resulted in over 449 million infections and over 6.5 million deaths globally until September 25, 2022[1]. Bangladesh is the second most afflicted nation in South Asia, following India, by the ongoing pandemic of COVID-19, with over 2.0 million confirmed cases and over 29 thousand deaths till September 25, 2022[2]. Due to the fact that the severity of the infection may range from asymptomatic to symptoms comparable to a common cold to severe forms of interstitial pneumonia necessitating emergency medical care, it would be very beneficial to identify the risk factors for adverse clinical outcomes[3]. Predicting the need for intensive care unit admission and mortality absolutely depends on variables such as age and the existence of comorbidities, as was soon learned[4]. According to a Chinese study, 23.7 percent of individuals with COVID-19 had at least one prior chronic underlying disease or comorbidity; this percentage increased to 40% in severe cases[4]. A previous chronic condition or comorbidity was found in 77.5 percent of individuals with COVID-19 in Bangladesh, and this figure increased to 94.4 percent in severe situations[5]. Diabetes mellitus is one of the most common comorbidities among COVID-19 patients, accounting for a larger number of comorbidities[6].

Diabetes mellitus is a chronic metabolic disorder that affects 422 million people globally, and 1.5 million people death each year as a direct result of diabetes, which is predominant in low and middle-income countries[7]. According to the World Health Organization, diabetes affected 8 percent (12.88 million) of Bangladesh's total population, accounting for 3 percent of all-age mortality overall. The prevalence of diabetes mellitus (DM) among Bangladeshi people has climbed gradually over time as well[8].

COVID-19 and diabetes mellitus have a complicated and reciprocal connection. The clinical course and prognosis of COVID-19 and diabetes may be influenced by each other since they are both linked with acute and chronic inflammation. The infection with COVID-19 has had a significant impact on patient metabolism, causing large changes in blood glucose levels. Insulin resistance and hyperglycemia are linked to the increased release of cytokines and inflammatory mediators (such as C-reactive protein, procalcitonin, ferritin, lactate dehydrogenase, and d-dimer)[9].

Another possibility is that COVID-19, which targets ACE2 receptors in pancreatic islets, contributes to the onset of acute diabetes mellitus in some of these individuals by causing pancreatic lesion[10]. Additionally, diabetes itself may be adversely affected by a severe SARS-CoV-2 infection and the steroids used in its management[11].

Among severe COVID-19 cases, DM has been proven to be an independent predictor of hospital admission, the need for intensive care, and mortality in multiple large, well-performed cohort studies worldwide[12]. Another research in China found that 8.2 percent of patients had COVID-19 and diabetes mellitus (DM) as co-morbid conditions, and that severe instances of DM constituted for 17.7 percent of the population[13]. In studies conducted in Italy and the United States of America, it was observed that 14.3 percent and 33.8 percent, respectively, of hospitalized patients with COVID-19, had diabetes as a pre-existing comorbid condition[14]. In recent research conducted in Bangladesh, it was discovered that 54.6 percent of patients had both COVID-19 and diabetes mellitus (DM) as co-morbid conditions and that severe cases of DM affected 73.1 percent of the population[5].

Pre-existing DM should be evaluated for its effect on the progression and severity of COVID-19. Males and older adults may be more vulnerable to developing

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COVID-19. Fever, cough, fatigue, and shortness of breath were the most common symptoms reported by COVID-19 patients admitted to hospitals, regardless of whether they had a comorbid illness[5]. As a result, physicians must conduct additional clinical laboratory testing to rule out DM exacerbation from SARS CoV-2 infection while evaluating signs or symptoms.

While some research has been performed on the relationship between DM and COVID-19, only a few studies on the clinical and laboratory findings of COVID-19 patients with DM comorbid have been implemented. Even though it has already been established those chronic diseases like DM and others enhance morbidity and death from COVID-19, people of different ethnicities have been disproportionately impacted. Some research has documented the clinical and laboratory characteristics of COVID-19 in the context of Bangladesh[5], but so far, these data concerning DM among COVID-19 patients are still lacking.

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