LETTER TO THE EDITOR

Increased Severity of COVID-19 in Patients with Newly Diagnosed Diabetes: A Public Health Priority

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Dear Editor,

The recently published article by Maheshwari A et al. [1] adds to the existing body of evidence that coronavirus disease-2019 (COVID-19) patients with newly diagnosed diabetes (NDD) experience more severe illness than those with preexisting diabetes (PD) [2 - 5]. However, the mechanisms explaining this surprising observation have not yet been completely identified ever since it was first reported by Li H et al. [6] during the pandemic’s very early phase (Jan to Mar 2020).

In the study by Maheshwari A et al. of 1630 adults (≥18 years), 958 (58.8%) had PD, 224 (13.7%) had NDD, and 448 (27.5%) had no diabetes. Compared with patients with NDD, those with PD had significantly higher levels of parameters that contribute to the increased severity of COVID-19: mean random blood glucose (240.4 mg/dl vs. 309.5 mg/dl), HbA1c (6.7% vs. 8.1%), and age (50.8 vs. 52.7 years), and males (59.8% vs. 63.6%) and ≥4 comorbidities (0.9% vs. 21.1%). On the contrary, patients with NDD were significantly more likely to be hospitalized for COVID-19 treatment (82.6% vs. 45.4%), have a high chest computed tomography severity score (47.6% vs. 15.1%), and require oxygen support (74.0% vs. 42.7%) and steroids (85.3% vs. 74.4%) compared to those with PD. The authors, however, did not provide data on inflammatory markers, coagulation indices, and the use of anti-diabetes medications during hospitalization. Guidelines recommend using dipeptidyl peptidase-4 (DPP4) inhibitors and glucagon-like peptide 1 (GLP1) analogues (although with caution of avoiding dehydration) [7], as these drugs may reduce COVID-19 severity by their anti-inflammatory actions [8].

Possible mechanisms explaining the increased risk of severe COVID-19 in NDD patients include stress hyperglycemia, modulation of immune and inflammatory responses by acute hyperglycemia, lack of protective effect from metformin (as in PD patients), upregulation of angiotensin-converting enzyme 2 (ACE2) receptors on cells due to acute hyperglycemia (thereby facilitating virus entry into the cells), and occult or masked multi-organ damage due to the undiagnosed nature of NDD [4 - 6, 9 - 14].

An estimated 240 million people live with undiagnosed diabetes globally, which translates to almost one-in-two adults with diabetes being unaware of their condition [15]. More worrying, nearly 90% of people with undiagnosed diabetes live in low- and middle-income countries such as India. Undiagnosed diabetes, in addition, to causing several diabetes-related complications [15], results in increased severity and mortality from COVID-19. Thus, detecting people with undiagnosed diabetes and treating them early is now a public health priority more than ever.

LIST OF ABBREVIATIONS

NDD = Newly Diagnosed Diabetes
COVID-19 = Coronavirus Disease-2019
PD = Preexisting Diabetes
DPP4 = Dipeptidyl Peptidase-4
GLP1 = Glucagon-like Peptide 1
ACE2 = Angiotensin-converting Enzyme 2

CONFLICT OF INTEREST

The author declares no conflict of interest financial or otherwise.

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REFERENCES

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