



Persistence of new-onset diabetes in the post-acute phase of COVID-19

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To the Editor,

The article by Madhu [1] discusses the challenges in providing post-COVID-19 diabetes care. In addition to these challenges, we like to point out that the persistence of new-onset diabetes (NOD) after recovery from COVID-19 is a crucial challenge. A meta-analysis of 8 studies with 3711 COVID-19 patients (492 NOD cases) showed that 14% of hospitalized COVID-19 patients had NOD during the acute phase of the illness [2]. Since studies included in this meta-analysis were conducted in mid-2020, it was not known whether NOD is transient or if it would persist after recovery. Given the pandemic is ongoing for more than 2 years, reports on the long-term effects of COVID-19 are emerging.

In a study by Farag et al. [3], of 570 COVID-19 patients (mean age: 47.9 years) admitted to two hospitals in Egypt, 65 (11.4%) were diagnosed with NOD (fasting plasma glucose [FPG] ≥ 126 mg/dl or RBG ≥ 200 mg/dl and HbA1c $< 6.5\%$). Among the 54 NOD survivors, diabetes persisted in 37 (68.5%) patients after 3 months. In a study by Montefusco et al. [4], of 551 patients (mean age: 61 years) hospitalized for COVID-19 in a single center in Italy, 65 (11.8%) had NOD (definition not given) during their in-hospital stay. Diabetes persisted in approximately 2% of NOD patients at 6 months. In a more recent study by Cromer et al. [5], of 1902 COVID-19 patients (median age: 59.1 years) admitted to a single tertiary care hospital in Boston, 77 (13.0%) were diagnosed with NOD. NOD was defined if the patient had no prior history of diabetes (based on self-reports or clinical notes), no HbA1c

values $\geq 6.5\%$, no random blood glucose [RBG] values > 200 mg/dl, and had never taken non-metformin diabetes medications. More than half (56.3%) of the 64 survivors with NOD continued to have diabetes (HbA1c $\geq 6.5\%$, use of diabetes medications, or diabetes diagnosis in clinical notes) at a median follow-up of 323 days.

Potential mechanisms contributing to NOD in the post-acute phase may include virus-induced β -cell cytotoxicity, insulin resistance, and dysregulation of the immune and renin-angiotensin systems [2]. The persistence of NOD in the post-acute phase of COVID-19 is alarming, as this might put enormous burden on individuals and health systems in terms of increased morbidity and cost of care, particularly in developing countries. Therefore, clinicians should be aware of this emerging challenge and must be prepared to tackle this as part of the post-COVID-19 management strategies.

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Declarations

Competing interests The authors declare no competing interests.

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