

# World Journal of *Virology*

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**ABOUT COVER**

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## Novel appearance of hyperglycemia/diabetes, associated with COVID-19

Ioannis Ilias

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### Abstract

In a recent meta-analysis the prevalence of coronavirus disease 2019 (COVID-19)-associated hyperglycemia was 25%, and that of COVID-19-associated new-onset diabetes was 19%. An association between hyperglycemia or new-onset diabetes and COVID-19 has been suggested. In a recent relevant study of critically and non-critically ill patients with COVID-19, we found that indeed beta-cell function was compromised in critically ill patients with COVID-19 and that these patients showed a high glycemic gap. Nevertheless, one quarter of critically ill patients with no history of diabetes have stress hyperglycemia, a finding which could obscure the prevalence of hyperglycemia or new-onset diabetes that could be attributed to COVID-19 *per se*.

**Key Words:** Blood glucose; Pandemics; Severe acute respiratory syndrome coronavirus 2; Humans; Hyperglycemia; Hospitalization

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**Core Tip:** An association between hyperglycemia or new-onset diabetes and coronavirus disease 2019 (COVID-19) has been suggested. Nevertheless, one quarter of critically ill patients with no history of diabetes have stress hyperglycemia, a finding which could obscure the prevalence of hyperglycemia or new-onset diabetes that could be attributed to COVID-19 *per se*.

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## TO THE EDITOR

We have read with great interest the work by Shrestha *et al*[1] regarding new-onset hyperglycemia/diabetes (DM) in patients with coronavirus disease 2019 (COVID-19). With an erudite meta-analysis the authors found that the pooled prevalence of COVID-19-associated hyperglycemia was 25.23% and that the prevalence of COVID-19-associated new-onset DM was 19.70%[1].

An association between hyperglycemia/new-onset DM and COVID-19 has been suggested[2], via decreased insulin secretion and increased insulin resistance[2,3]. In a recent relevant study, of critically and non-critically ill patients with COVID-19, we found that indeed beta cell function (based on glucose and insulin measurements and using the Homeostasis Model Assessment HOMA2 estimate of steady state beta cell function[4]) was compromised in critically ill patients with COVID-19. Furthermore, these patients showed a high glycemic gap (based on admission glucose and glycosylated hemoglobin measurements)[5]. Nevertheless, we acknowledged that on average, 25% of critically ill patients with no history of DM have stress hyperglycemia[5-7], a finding which could obscure the prevalence of hyperglycemia/new-onset DM that could be attributed to COVID-19 *per se*.

Thus, it would be interesting if the results of the study by Shrestha *et al*[1] were presented separately-if possible-for critically and non-critically ill patients with COVID-19 and compared to non-COVID-19 patients.

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## FOOTNOTES

**Author contributions:** Ilias I conceived and wrote this letter.

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## REFERENCES

- 1 Shrestha DB, Budhathoki P, Raut S, Adhikari S, Ghimire P, Thapaliya S, Rabaan AA, Karki BJ. New-onset diabetes in COVID-19 and clinical outcomes: A systematic review and meta-analysis. *World J Virol* 2021; **10**: 275-287 [PMID: [34631477](https://pubmed.ncbi.nlm.nih.gov/34631477/) DOI: [10.5501/wjv.v10.i5.275](https://doi.org/10.5501/wjv.v10.i5.275)]
- 2 Muniangi-Muhitu H, Akalestou E, Salem V, Misra S, Oliver NS, Rutter GA. Covid-19 and Diabetes: A Complex Bidirectional Relationship. *Front Endocrinol (Lausanne)* 2020; **11**: 582936 [PMID: [33133024](https://pubmed.ncbi.nlm.nih.gov/33133024/) DOI: [10.3389/fendo.2020.582936](https://doi.org/10.3389/fendo.2020.582936)]
- 3 Lim S, Bae JH, Kwon HS, Nauck MA. COVID-19 and diabetes mellitus: from pathophysiology to clinical management. *Nat Rev Endocrinol* 2021; **17**: 11-30 [PMID: [33188364](https://pubmed.ncbi.nlm.nih.gov/33188364/) DOI: [10.1038/s41574-020-00435-4](https://doi.org/10.1038/s41574-020-00435-4)]
- 4 Wallace TM, Levy JC, Matthews DR. Use and abuse of HOMA modeling. *Diabetes Care* 2004; **27**: 1487-1495 [PMID: [15161807](https://pubmed.ncbi.nlm.nih.gov/15161807/) DOI: [10.2337/diacare.27.6.1487](https://doi.org/10.2337/diacare.27.6.1487)]
- 5 Ilias I, Diamantopoulos A, Pratikaki M, Botoula E, Jahaj E, Athanasiou N, Tsipilis S, Zacharis A, Vassiliou AG, Vassiliadi DA, Kotanidou A, Tsagarakis S, Dimopoulou I. Glycemia, Beta-Cell Function and Sensitivity to Insulin in Mildly to Critically Ill Covid-19 Patients. *Medicina (Kaunas)* 2021; **57** [PMID: [33466617](https://pubmed.ncbi.nlm.nih.gov/33466617/) DOI: [10.3390/medicina57010068](https://doi.org/10.3390/medicina57010068)]
- 6 Bellaver P, Schaeffer AF, Dullius DP, Viana MV, Leitão CB, Rech TH. Association of multiple glycemic parameters at intensive care unit admission with mortality and clinical outcomes in critically ill patients. *Sci Rep* 2019; **9**: 18498 [PMID: [31811218](https://pubmed.ncbi.nlm.nih.gov/31811218/) DOI: [10.1038/s41598-019-55080-3](https://doi.org/10.1038/s41598-019-55080-3)]
- 7 Ali Abdelhamid Y, Kar P, Finnis ME, Phillips LK, Plummer MP, Shaw JE, Horowitz M, Deane AM. Stress hyperglycaemia in critically ill patients and the subsequent risk of diabetes: a systematic review and meta-analysis. *Crit Care* 2016; **20**: 301 [PMID: [27677709](https://pubmed.ncbi.nlm.nih.gov/27677709/) DOI: [10.1186/s13054-016-1471-6](https://doi.org/10.1186/s13054-016-1471-6)]



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