Reply to comment on "Unexpected decline in glycated hemoglobin level after emergency COVID-19 measures in three robust older Japanese women with prediabetes/mild type 2 diabetes"

Dear Editor,

Mungmunpuntipantip and Wiwanitkit expressed concerns[1] about the glycated hemoglobin (HbA1c) measurement in our three robust older women who showed a decline in HbA1c after emergency COVID-19 measures.[2] Their first concern was the laboratory's quality control for our HbA1c measurement. The serial analysis of HbA1c value in these three robust older women was performed by a high-quality HbA1c analyzer (HLC-723G11) in our University Hospital. The analysis had sufficiently low imprecision coefficients of variation (CVs), with repeatability imprecision CVs of 1.0% and 0.6% for low and high HbA1c venous samples and between-day imprecision CV of 0.6% for low HbA1c venous samples,[3] which are comparable with, or even lower than the respective imprecision CVs in the report[4] cited in their references.[1] The HbA1c level decreased by 0.3% in each of the three robust older women after emergency COVID-19 measures.[2] Even when adopting the largest error range using venous samples in the report (3.80%),[4] the largest error in the HbA1c decline in our robust older women would be only about ±0.01% HbA1c. Thus, their concern about the quality control of our HbA1c measurement is unjustified.

They found an increase in blood viscosity in patients with COVID-19, and expressed a second concern about the influence of blood viscosity on HbA1c measurement.[1] However, our three robust older women with unexpected HbA1c decline were, in the first place, not infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), but just stayed at home during the emergency measures in response to the call by the government to reduce contact with others by at least 70% and by as much as 80%,[5] and refrained from visiting friends with sweets and sugary drinks.[2] Thus, their second concern is also unwarranted.

Older subjects, particularly those with type 2 diabetes mellitus, are vulnerable to COVID-19 as well as the secondary consequences of the pandemic.[6,7] Among older patients with COVID-19, diabetes mellitus, older age ≥75 years and male sex were associated with a higher probability of death.[8] Moreover, among patients with both COVID-19 and type 2 diabetes mellitus, HbA1c >8.0%, older age ≥65 years and male sex were also associated with a higher probability of death.[9] On the other hand, a higher HbA1c level was reported in non-infected older outpatients with type 2 diabetes after the first emergency COVID-19 measures in Japan, and in those during home confinement related to the COVID-19 lockdown in Italy, probably due to a decrease in physical activity during the measures.[2] Even social distancing itself in the era of the pandemic resulted in worsening of fasting glucose and HbA1c levels associated with increased body weight in older patients with type 2 diabetes mellitus.[10] Conversely, the first emergency COVID-19 measures in Japan deprived our three robust women of happy times with friends, but brought about an unexpected decline in their HbA1c level.[2]

Disclosure statement

The authors declare no conflict of interest.

Data availability statement

Owing to privacy/ethical restrictions data are only available on request.

Tazuo Okuno, Osamu Iritani, Kumie Kodera, Daisuke Hama, Asami Kane, Kozue Morigaki, Toshio Terai, Norie Maeno and Shigeto Morimoto
Center for Comprehensive Care on Memory Disorders, Kanazawa Medical University, Kahoku-gun, Ishikawa, Japan

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