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Letter to Editors

COMMENT ON AN ARTICLE: “Homocysteine as a potential predictor of cardiovascular risk in patients with COVID-19”



Dear Editor-in-Chief Mehar S. Manku

We have read with great attention the article “Homocysteine as a potential predictor of cardiovascular risk in patients with COVID-19”, written by colleagues Ponti, Ruini and Tomasi (Authors) in the forthcoming October issue of Medical Hypotheses, published online in the May issue of same Journal [1]. This interesting article evaluates possible relation between hyperhomocysteinemia and cardiovascular risk in patients with COVID-19. We welcome the opportunity to make a short comment as well.

Undoubtedly, hyperhomocysteinemia has neurotoxic, neuroinflammatory, neurodegenerative, proatherogenic, prothrombotic, and prooxidative effects [2]. It is linked with the existence of C667T MTHFR mutation, but also with reduced levels of B9 (folic acid) and other B-vitamins [3]. In our study, we have shown that almost 17% of patients with prothrombotic / proembolic ischemic stroke had non-iatrogenic hyperhomocysteinemia [4].

Furthermore, previous reports unveiled that hyperhomocysteinemia contributed alongside many virus-infections including: human hepatitis virus, human papilloma virus, as well as human immunodeficiency virus [5,6,7]. Novelty pandemic coronavirus disease (COVID-19) has yet unclear kaleidoscopic presentation. Also, (co)incidental appearance of hyperhomocysteinemia can make numerous negative effects, but not only in COVID-19 patients. Unfortunately, there was very poor reliable data of their concomitance according to PubMed survey.

Later, follow-up imaging in SARS-CoV-2 patients with pneumonia often demonstrated the disease severity [8]. Interestingly, high number of pulmonary embolism was noted in COVID-19 pneumonia patients (20.6%), despite the fact that 90% of them were receiving prophylactic antithrombotic treatment according to the current guidelines. So, failure to identify cardiovascular risk could worsen the prognosis [9]. It is of great importance for early warning of aggravation, which could help clinicians manage quickly and accurately [10].

Perhaps, it is necessary to add-on other medications to minimize cardiovascular risk and improve health condition of COVID-19 patients with pneumonia, also with the real possibility of pulmonary embolism. According to studies of Authors as well as Yang et al. (2020) on 40 and 273 COVID-19 patients, levels of homocysteine were significantly higher and also showed predictive value for CT-imaging progressions [1,11]. Our studies show that the intake of B9 vitamin, sometimes with other vitamins in this group, was effective in creating normalized homocysteine levels in patients with ischemic stroke and Parkinson's disease [4,3]. Furthermore, other studies also prove its quality in lowering hyperhomocysteinemia [12,13]. B-vitamins (B2, B3, B6) are identified with the enhancement of the immune system [14]. Consequently, their prescriptions for COVID-19 patients should continue as per usual in clinical practice [15].

We emphasize that B9 vitamin and other B-vitamins are “on the

first-line” – good and safe in reduction levels of homocysteine. Therefore, B-vitamins can, *ad hoc*, become the medication of choice in the treatment when harmful hyperhomocysteinemia coexisting with COVID-19. Finally, we would encourage other professionals on making future efforts, as well as investigations and discussions about this topic.

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Declaration of Competing Interest

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.mehy.2020.110107>.

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