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LETTER TO THE EDITOR

Comment on an article: "Osteoporosis in the age of COVID-19 patients"

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Dear Co-editors-in-Chief Kanis and Cosman,
We have read with great attention the article "Osteoporosis in the age COVID-19 patients", written by Girgis and Clifton-Bligh (authors) in the July issue of *Osteoporosis International*. We welcome the opportunity to make a short comment as well. This very interesting article evaluates treatment of osteoporosis in disaster of COVID-19. The authors emphasized that osteoporosis kills and every year almost, 750,000 people lose their lives around the world as a result of hip fracture [1].

We want to highlight that older patients (very often with osteoporosis) are also with increased risk for mortality due to novelty SARS-CoV-2 pandemic. Evidence of osteoporosis associating nutritional factors; particularly calcium and vitamin D are reviewed as association of falls risk with fracture [2]. Unfortunately, in the group of very old patients with fragility fractures, only 28.6% were on adequate osteoporosis treatment [3]. High serum homocysteine has been shown to have detrimental effects on neural cells, vascular endothelial cells, osteoblasts, and osteoclasts. Therefore, hyperhomocysteinemia may be regarded as a factor that can reduce both bone mass and impair bone quality [4]. In addition, high serum homocysteine often associated increased risk for fractures. Unfortunately, hyperhomocysteinemia appeared to be predictive of all-cause mortality, independent of frailty, an age-related clinical state characterized by a global impairment of physiological functions and involving multiple organ systems [5]. Values of vitamin B9 (folic acid) and B12 are in negative correlation with levels of homocysteine [6].

Furthermore, according to PubMed survey, there was no reliable data due to concomitance of COVID-19, hyperhomocysteinemia, and osteoporosis/fractures. So, what to do when we have older COVID-19 patient with hyperhomocysteinemia and high risk for bone fracture? Authors highlighted: "Clinicians need to adapt to the challenges posed by this crisis and consider ways to continue serving the most vulnerable amongst us, those with chronic disease with their own substantive morbidity and mortality".

In light of this, we suggest that level of homocysteine and B9/B12 vitamin should be measured at clinical follow-up in all older patients with COVID-19, immediately after hospitalization. If persistent, hyperhomocysteinemic proosteoporotic (but also prothrombotic) state should be promptly decreased in acute phase of COVID-19, on the base of Latin phrase *primum non nocere*.

Our studies from Bosnia and Herzegovina showed that the intake of B9 vitamin, sometimes with B12 vitamin as well, was efficient in creating normalized homocysteine levels in older patients with ischemic stroke and Parkinson's disease [7, 8]. Fortunately, risk of side effects is minimal if the daily dose of B9 vitamin is 1–5 mg [9]. So, we point out that B9/B12 vitamin are "on the first-line"—good and safe in reduction levels of homocysteine in various older patients. In addition, B2/B3/B6 vitamins are enhancers of the immune system and might be efficient as soldiers from second echelon in battling with COVID-19 [10]. All in all, B-vitamins can, ad hoc, become the medication of choice in the treatment when unhidden hyperhomocysteinemia/osteoporosis coexists with COVID-19. Lastly, we emphasize that further studies will elucidate proosteoporotic/prothrombotic potential of hyperhomocysteinemia in COVID-19 patients as well as beneficial add-on effects of B-vitamins.

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Compliance with ethical standards

Conflict of interest None.

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