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LETTER

De novo autoimmune hepatitis associated with PTH(1-34) and PTH(1-84) administration for severe osteoporosis in a liver transplant patient: reply to Aguilera and Nuñez-Roldan

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Dear Editor,

We read with interest the comments by Aguilera et al. [1] regarding our recently published case report in *Osteoporosis International* [2]. To our knowledge, this is the first case described in the literature involving development of post-liver transplantation (LT) de novo autoimmune hepatitis (AIH), following parathyroid hormone 1-34 [PTH(1-34) or teriparatide] and 1-84 [PTH(1-84)] administration for severe osteoporosis. The exact mechanisms linking PTH with AIH are not clarified. However, we hypothesized that Kuppfer cells in the liver, which are implicated in PTH degradation and which express the PTH/PTH-related protein type 1 receptor, play a key role in the pathogenesis of AIH, since they also produce interleukin-6 [2].

First of all, we thank Aguilera et al. for their interest in our paper. We appreciate their own work on this topic, which was unfortunately not cited in this article. Regarding the exact time that our patient developed de novo AIH after LT, this was 3 years, as we state in the text. We agree, as stated in the paper, that the assessment of serum autoantibodies directed against the cytosolic enzyme glutathione *S*-transferase T1 (GSTT1) and GSTT1 donor/recipient mismatch constitute a major factor implicated in the pathogenesis of de novo AIH in post-LT patients. Unfortunately, we were not able to measure anti-GSST1 antibodies, due to test unavailability in our country. Furthermore, alternative pathways distinct from the GSTT1 system and probably associated with PTH catabolism in the liver may lead to de novo AIH [3, 4].

Regarding the concerns raised by Aguilera et al. about our study presentation, we carefully checked the references in the Introduction and Discussion sections one by one, and we regard them as appropriate and fully matched to the points discussed in the text. Perhaps the only point that we agree with is that reference 7 does not support the second sentence in paragraph 2 of the Introduction section, since it refers to an older study. We regret to have omitted some other important references, as those indicated by Aguilera, but the journal's word limit for case reports did not allow us to cite all of them. We also had to include some data about de novo AIH after LT for primary biliary cirrhosis, which was the underlying pathology in the index case (references 8, 13, 15). Furthermore, our paper was reviewed by three independent reviewers, and none of them raised any concern about mismatched or inappropriate references.

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