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LETTER TO THE EDITOR

Response to the Letter: Concerns regarding greater occipital nerve blockade as a substitute for withdrawal in medication-overuse headache

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We thank the authors for their thoughtful comments and for their interest in our study. We appreciate the opportunity to clarify several methodological and conceptual points that may help to better contextualize our findings.

Regarding the concentration of local anesthetic used for the greater occipital nerve (GON) block, the critique appears to rely primarily on literature describing distal GON block performed using landmark-based techniques and relatively low injection volumes. In contrast, our study employed an ultrasound-guided proximal GON block at the C2 level, where the nerve courses within a fascial plane. In this anatomical context, the block is performed as a planar injection with a higher volume (up to 4 mL), allowing broader spread along the nerve trajectory. Consequently, lower concentrations of local anesthetic can be used while still achieving effective neural coverage. In our prior clinical experience, the use of higher concentrations of bupivacaine at this proximal level was associated with a higher incidence of noticeable local and systemic adverse effects, which further supported our preference for lower anesthetic concentrations in this setting.[1] This volume-based approach is well established in other ultrasound-guided fascial plane blocks and cannot be directly compared with distal, low-volume, high-concentration techniques.

Moreover, ultrasound guidance enabled injection in close proximity to the nerve sheath, increasing the likelihood of a genuine local anesthetic effect despite the lower concentration. In addition, in our previous work using a similar proximal ultrasound-guided technique, we demonstrated objective clinical effects consistent with local anesthetic action. Taken together, these findings argue against the interpretation that the observed effects were solely attributable to placebo responses, systemic steroid activity, or spontaneous fluctuation in headache frequency.[2,3]

Regarding the role of withdrawal therapy, we would like to emphasize that our study was not designed to suggest abandoning withdrawal as a first-line treatment for medication-overuse headache (MOH). On the contrary, withdrawal therapy demonstrated equal or superior efficacy compared to GON blockade in our cohort, in line with international guidelines. However, in real-world clinical settings, particularly in high-volume centers or populations with poor treatment adherence, the primary challenge is often not the efficacy of withdrawal itself but the inability of patients to complete or sustain the protocol.

Accordingly, our research question was pragmatic in nature: in patients for whom withdrawal cannot be successfully implemented or completed, can proximal GON block provide a comparable clinical

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benefit? This question does not position GON block as a replacement for withdrawal; rather, it explores its potential role as an alternative strategy in otherwise refractory or nonadherent patient populations.

It should also be noted that the withdrawal protocol applied in our study was intentionally designed to be more rapid than those described in some consensus statements, reflecting variability and the lack of a universally accepted standard in this area. This further underscores the clinical heterogeneity of MOH management and the need for complementary approaches.

Finally, with respect to steroid use, our results clearly demonstrated that dexamethasone did not confer additional benefit, whereas repeated proximal GON block achieved clinical effectiveness only after multiple applications. This finding supports the hypothesis that the therapeutic effect observed in our study was not steroid-driven and further highlights the potential importance of block location and repetition in MOH treatment.

We agree with the authors that future prospective studies evaluating standardized withdrawal protocols combined with proximal, ultrasound-guided GON block using clearly defined volumes and concentrations would be valuable to further clarify efficacy and mechanisms. We thank the authors again for their constructive remarks, which contribute meaningfully to the ongoing discussion of MOH management.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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