

In Response

To the Editor:

Thank you for your comments on our research paper, titled "A Double-Blind, Placebo-Controlled Study of Ultrasound-Guided Pulsed Radiofrequency Treatment of the Saphenous Nerve for Refractory Osteoarthritis-Associated Knee Pain" (1).

First, I would like to address your comment regarding the ethical issues of performing an invasive procedure involving needle puncture in the control group despite the absence of therapeutic effect. This issue is important for all researchers conducting placebo-controlled randomized trials. Of course, we believe that comparing the effectiveness of an invasive procedure with conventional conservative treatments, such as rehabilitation, is meaningful. However, in order to rigorously examine the efficacy of pulsed radiofrequency treatment of the saphenous nerve, we chose to use placebo as a control in this study. Therefore, we took time to explain to the patients that the participants in this study would be randomly divided into treatment and control groups, that those in the control group would be subjected to invasive procedures, involving needle puncture, despite the absence of treatment effect, and that the needle puncture could lead to bleeding, infection, or addiction. Only patients who gave their consent were selected to participate in the study.

Next, I would like to comment on the location for stimulating the saphenous nerve, while avoiding stimulation of the vastus medialis. The saphenous nerve and the vastus medialis branch originate from the femoral nerve, after which they course within the adductor canal. However, the distance between those two nerves increases as they travel from the proximal side to the periphery. Thus, when observation is carried out us-

ing an ultrasound probe in the midline of the thigh (as was done in this study), the saphenous nerve is located along the artery, whereas the vastus medialis branch is mostly located far lateral in relation to the artery. Therefore, selective stimulation of the saphenous nerve can be achieved by applying the stimulus at the location shown in Fig. 1 of the original article. If the vastus medialis branch gets stimulated despite the tip of the needle being applied at the location indicated in Fig. 1, moving the needle slowly forward between the sartorius muscle and the artery will eliminate the stimulation of the vastus medialis branch, thus allowing for selective stimulation of only the saphenous nerve.

In addition, the saphenous nerve and the vastus medialis branch can be difficult to visualize with ultrasonography alone. Therefore, concurrent electrical stimulation is also needed in addition to ultrasound when determining the appropriate position of the needle for selective sensory stimulation of the saphenous nerve alone, without causing a motor stimulation of the vastus medialis branch. The location of the saphenous nerve was successfully found in all the participants in this study. The final position of the needle tip varied depending on the patient, but for the most part, it coincided with the position indicated in Fig. 1.

I hope my answers were of assistance to you, and I was able to fully address your concerns.

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REFERENCES

1. Uematsu H, Osako S, Hakata S, et al. A double-blind, placebo-controlled study of ultrasound-guided pulsed radiofrequency treatment of the saphenous nerve for refractory osteoarthritis-associated knee pain: Randomized controlled trial. *Pain Physician* 2021; 24:E761-E769.