

**Letters to the Editor**

## **Comments on “Pericranial Total Tenderness Score in Patients with Tension-type Headache and Migraine: A Systematic Review and Meta-analysis”**

### **TO THE EDITOR:**

We have read with great interest the article entitled “Pericranial total tenderness score in patients with tension-type headache and migraine. A systematic review and meta-analysis” by Castien et al (1) published in *Pain Physician*. The authors found that higher tenderness scores were reported in patients with tension-type headache (TTH) and migraine compared to healthy controls. However, we would like to put forward several concerns.

Firstly, in-text citation numbers in Table 1 did not match the reference list at all. For example, a case-control study of chronic TTH by Bendtsen et al (2) was numbered 27 in parentheses, whereas 27 referred to another article by Ashina et al (3) in the reference part. Undeniably, scientific merits of a systematic review largely lie in the citations, which is a great convenience for the audience to review the articles of interest. From this point, we think that an erratum is necessary.

Secondly, duplicate studies seemed to be incorporated in the meta-analysis, which would incur certain bias to the overall effect size. When generating the pooled effect of the total tenderness score in chronic TTH versus healthy patients (Fig. 5), they included 2 articles by Fernández-de-las-Peñas et al (4,5), which were noticeably completed in the same year. Moreover, in both studies patients were recruited from the Neurology Department of the Fundación Hospital Alcorcón. It is a common practice to formulate a series of related hypotheses based on the same cohort like the Framingham Heart Study (6). The research groups tend to focus on slightly different aspects and get their work published continuously at one time and sample overlap seems inevitable. When performing a meta synthesis in this case, it might be necessary to reach out to corresponding authors to figure out the overlap in original studies and use individual-level data if possible. In Fig. 5, 2 study cohorts by Ashina et al (3,7) might be partly duplicated as well.

Furthermore, it seemed irrational to include ex-

actly the same healthy group twice to get a pooled effect size in Fig. 6. In the 3-arm study (migraine with ictal neck pain, migraine without ictal neck pain, and healthy controls) by Hvedstrup et al (8), cases with migraine should have been combined to draw a comparison with healthy controls. Instead, the authors included 2 separated yet overlapped comparisons (migraine with ictal neck pain versus healthy controls, and migraine without ictal neck pain versus healthy controls) into the meta-analysis, which has manifestly taken in a duplicated healthy cohort. It is indeed acceptable to encompass studies with duplicate patients in the systematic review or qualitative evidence synthesis. Nevertheless, extra cautions should be exerted when incorporating overlap studies into the meta-analysis, which should be a rigorous quantitative process.

Meta-analysis is a powerful tool to inform evidence-based decision-making. However, above issues should be well clarified to enhance the strength of evidence and to establish whether the pericranial tenderness score should serve as an effective tool in the diagnosis of TTH and migraine.

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