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Letter to the Editor

Lidocaine may be Beneficial in Migraine not only by Reducing Depolarisation of Neurons but also of Striated and Smooth Muscle Cells

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We were intrigued to read Evcili *et al*'s article reporting a retrospective cohort study on the effect of peripheral nerve block (PNB) of the greater occipital nerve (GON), lesser occipital nerve (LON), and supraorbital nerve (SON) using lidocaine injections in 39 patients with episodic migraine (EM) and 77 patients with chronic migraine (CM) conducted between November 2019 and January 2022 [1]. Seventy of the enrolled patients continued migraine prophylactic (21 with EM (EM P+PNB) and 49 with CM (CM+PNB)) while 46 discontinued migraine prophylaxis (18 with EM (EM PNB) and 28 with CM (CM PNB)) [1]. The number of days with pain, number of analgesics taken, visual analogue score (VAS) and migraine disability assessment (MIDAS) were reduced at the two-month follow-up in both EM and CM, regardless of whether the patient had received PNB or P+PNB [1]. It was concluded that PNB may be beneficial for both EM and CM [1]. Although the study is wonderful, it also highlights issues that need to be considered.

The major limitation of the study is its retrospective design. The retrospective design has the disadvantage that missing data can no longer be completed, data for which additional collection would be desirable can no longer be collected, and electronically stored data can no longer be checked for accuracy and reliability. How were missing data handled?

A second limitation is that it was not reported how many of the included patients had experienced SARS-CoV-2 infection (SC2I) and how many had undergone SARS-CoV-2 vaccination (SC2V) [1]. It is crucial to know how many of the enrolled patients had SC2I or recent SC2V, as SC2I and SC2V can be complicated by headache, can increase frequency, intensity of pre-existing migraine, and trigger new-onset migraine [2,3].

The third limitation of the study is that the current medications, particularly antidepressants, neuroleptics, hypnotics, sedatives, and antiepileptics were not mentioned and not included in the assessment [1]. Since they can change the intensity, character, and frequency of migraines, it is imperative to include them in the assessment.

The fourth limitation is that it was not discussed that the effectiveness of PNB suggests that tension-type headache could be a component of headache and that at least some of the included patients may not have had pure EM or pure CM. But rather a mixture of tension headaches and migraines. With regard to tension headaches, it must be discussed that lidocaine not only reduces depolarisation of neurons, but also of striated and smooth muscles cells [4]. Therefore, it cannot be ruled out that its beneficial effect is also due to muscle relaxation and even the dilation of resistance arteries, thereby reducing their permeability.

Overall, the interesting study has shortcoming that raise doubts about the conclusions and their interpretation. Clarifying these deficiencies could improve the results and conclusions of the study. PNB with lidocaine reduces depolarisation not only of neurons, but also of striated and smooth muscle cells. Therefore, lidocaine PNB may be beneficial for migraines by relaxing muscle tone and dilating the cranial arteries.

Declarations

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