Reviewer's report

Title: Association of extracellular signal-regulated kinase expression with anti-alldynic effect in spared nerve injury rats by applying immediate pulsed radiofrequency

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Reviewer: Tuan Trang

Reviewer's report:

Yeh et al. investigated the effects of pulsed radiofrequency (PRF) on neuropathic pain behaviours in a spared nerve injury rat model. They report that PRF attenuated mechanical allodynia and cold allodynia in nerve-injured rats. PRF was also found to suppress the activation of ERK1/2 activation in the spinal cord following nerve injury. The authors therefore conclude that PRF may be effective in managing neuropathic pain.

Major Compulsory Revisions:

A major concern that I have with this paper is the association with ERK. The authors report an upregulation of pERK in the spinal cord of nerve injured animals, and that PRF prevented this upregulation. From this finding, the authors conclude that inhibition of ERK activation in the spinal cord is a key mechanism of action for PRF attenuation of neuropathic pain. This is a very weak conclusion as PRF could have affected a number of other cellular targets that have also been implicated in neuropathic pain. The findings implicating ERK are correlative. Thus, the conclusion made by the authors fail to show causation.

It is still unclear how PRF may be producing its antinociceptive effects; this should be more explicitly outlined. Also, were the experiments conducted so that the experimenter was blinded to the treatment groups?

Minor Essential Revisions:

Differences in nociceptive behaviours are difficult to glean from Tables 1 and 2. These would be better represented as line graphs.

The writing is this manuscript leaves much to be desired. There are many parts that need revision in terms of grammar and language.

Level of interest: An article of insufficient interest to warrant publication in a scientific/medical journal

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

I declare that I have no competing interests.