Review of: "Impending role of hippocampal neurogenesis in the development of chronic epilepsy following seizures after Kainic acid and Pentylenetetrazol treatment"

Yunpeng Liu[1]

1 Beijing Chao-Yang Hospital

Potential competing interests: No potential competing interests to declare.

Firstly, I would like to commend the authors on their extensive work exploring the complex interplay between seizures, hippocampal neurogenesis, and the development of chronic epilepsy. The immunohistochemical analysis of the hippocampus in rats treated with kainic acid and pentylenetetrazol provides valuable insights into the cellular and molecular changes occurring post-seizure. The detailed investigation into the role of neuronal nitric oxide synthase (nNOS), NGF, and BDNF is particularly noteworthy and adds substantial depth to our understanding of the biochemical landscape following induced seizures.

However, there are certain areas where the study could benefit from further refinement and additional data to enhance the robustness and applicability of the findings:

1. Lack of Electrophysiological Analysis:

While the current study offers significant insights into the morphological and biochemical changes post-seizure, integrating electrophysiological data could provide a more comprehensive understanding of the functional implications of these changes. Electrophysiological recordings, such as EEG, could help correlate the observed cellular changes with alterations in neural circuitry and seizure activity, offering a more holistic view of the pathophysiology of epilepsy.

2. Lack of Longitudinal Behavioral Analysis:

Another aspect that could further enrich the study is a more detailed longitudinal behavioral analysis of the rats. Assessing the long-term behavioral outcomes post-treatment could offer valuable insights into the functional consequences of the induced neurobiological changes. Parameters such as cognitive function, anxiety-like behavior, and motor coordination could be evaluated at various time points post-treatment to understand the broader implications of the induced seizures and neurogenesis on the overall well-being and functionality of the animals.

In conclusion, the study makes a valuable contribution to our understanding of the relationship between seizures, hippocampal neurogenesis, and epilepsy. Incorporating electrophysiological data and/or conducting a comprehensive behavioral analysis could significantly enhance the depth and applicability of the findings. I look forward to future studies that build on this solid foundation to further unravel the intricate mechanisms underlying epilepsy.