Central poststroke pain

While tricyclic antidepressants and anticonvulsants have been suggested for central poststroke pain syndrome, there is a regrettable lack of evidence supporting the use of daily medications aimed at reducing poststroke headache frequency. [1)]

Central poststroke pain (CPSP) is a severe type of neuropathic pain that can develop after stroke and is difficult to treat. Research into its underlying mechanisms and treatment options could benefit from a valid CPSP animal model. Nine different CPSP animal models have been published, but there are relatively few reports on successful reproductions of these models and so far only little advances in the understanding or the management of CPSP have been made relying on these models. In general, the construct validity (similarity in underlying mechanisms) of these CPSP animal models is relatively high, although this cannot be evaluated into depth because of lack of understanding the mechanisms through which thalamic stroke can lead to CPSP. The face validity (symptom similarity) is relatively low, mainly because pain in these models is tested almost exclusively through evoked mechanical/thermal hypersensitivity assessed by reflexive measures and given the conflicting results with similar tests in patients with CPSP. The predictive validity (similarity in treatment efficacy) has not been evaluated in most models and incorporates difficulties that are specific to CPSP. We compare the different models regarding these types of validity and discuss the robustness, reproducibility, and problems regarding the design and reporting of the articles establishing these models. We conclude with various proposals on how to improve the validity and reproducibility of CPSP animal models. Until further improvements are achieved, prudence is called for in interpreting results obtained through these models [2)].

1)
Harriott AM, Karakaya F, Ayata C. Headache after ischemic stroke: A systematic review and meta-analysis. Neurology. 2020 Jan 7;94(1):e75-e86. doi: 10.1212/WNL.0000000000008591. Epub 2019 Nov 6. PMID: 31694924; PMCID: PMC7011689.
2)
De Vloo P, Morlion B, van Loon J, Nuttin B. Animal models for central poststroke pain: a critical comprehensive review. Pain. 2017 Jan;158(1):17-29. PubMed PMID: 27992392.