OPEN PEER REVIEW REPORT 1

Name of journal: Neural Regeneration Research
Manuscript NO: NRR-D-21-00625
Title: Dynamic Changes in Partial Cerebrospinal Structures Revealed by Diffusion Tensor Imaging and the Pathology after Spinal Cord Injury in Canines
Reviewer's Name: Ina B. Wanner
Reviewer's country: USA

COMMENTS TO AUTHORS

The authors studied lower brain regions (cerebrospinal regions that are part of the corticospinal tract) after recoverable thoracic SCI in the dog. The study is descriptive without providing a causal connection of the global goal ("to explore ways to treat SCI extended to the brain") to the presented work.

Immunohistochemical images are not decipherable (this may be a resolution issue). A reason for placing the ROIs in certain places should be provided for MRI as well as for histopathology. What approach was used to achieve analyzing same position, or representative regions within an anatomical structure in sections as well as in MRI? The "score calculation" of the staining needs to be made transparent, its just referenced. The manuscript reports that 15 female dogs were used, yet correlation studies include only n=5 (Table 1) or 5-6 (graphs in Figures 7, 8). Elsewhere in the text it says that the SCI group had n=10 dogs. Immunohistochemistry was reported on n=5 dogs (Table 4). Thus, the reason(s) for omitting half of the animals need(s) to be provided. Repeated measures ANOVA needs to be used for significance testing at multiple timepoints. Multiple statistical tests (like the one shown in Table 3) need false discovery rate (FDR) correction to consider false-positives.

The manuscript language requires editing: it is repetitive and too long. Many statements are vague (e.g. "some experts" instead of Smith et al….). The language needs to be explicit and causal. Sentences like: "Building upon previous research, neurons in the present study were stained at 12-week after SCI, and the results revealed that there was not significant difference in CP after SCI." There is no clear rationale or finding. This sentence is from the Discussion, which repeats the Result findings throughout. The Conclusion does not state anything conclusive as the content of the findings is only circumscribed.

OPEN PEER REVIEW REPORT 2

Name of journal: Neural Regeneration Research
Manuscript NO: NRR-D-21-00625
Title: Dynamic Changes in Partial Cerebrospinal Structures Revealed by Diffusion Tensor Imaging and the Pathology after Spinal Cord Injury in Canines
Reviewer's Name: Xavier P Gaudin
Reviewer's country: USA

COMMENTS TO AUTHORS

Interesting and unique findings, although some its value may be limited in terms if its potential and future use at this time. Can this serve as a prognosticator for delayed recovery and function after SCI? How could we therapeutically target those cerebral structures to improve functional outcome after SCI? How does timing play a role? You may consider further elaborating on future directions based on your findings.