



**Accuracy in prediction of long-term functional outcome in patients with traumatic axonal injury: errors in citation**

|                  |                                                                                                    |
|------------------|----------------------------------------------------------------------------------------------------|
| Journal:         | <i>Brain Injury</i>                                                                                |
| Manuscript ID    | Draft                                                                                              |
| Manuscript Type: | Letter to the Editor                                                                               |
| Keywords:        | diffuse axonal injury, Glasgow Coma Scale, MRI scan, neuroimaging, outcome, traumatic brain injury |
|                  |                                                                                                    |

SCHOLARONE™  
Manuscripts

## Letter to the editor

### Accuracy in prediction of long-term functional outcome in patients with traumatic axonal injury: errors in citation

Hans Kristian Moe MD PhD, Anne Vik MD PhD, Kent Gøran Moen MD PhD.

We read with great interest the article published by Van Eijck et al, *Accuracy in prediction of long-term functional outcome in patients with traumatic axonal injury: a comparison of MRI scales*(1). Unfortunately, we discovered that some of our earlier published papers were imprecisely cited.

First, the paper stated that *“Bilateral thalamic lesions are related to an impaired consciousness in the acute phase but have no predictive value for the long-term prognosis*(3).” The first of the two statements is in accordance with our findings. However, we in the cited study also in addition showed that patients with bilateral thalamic TAI lesions had significantly worse outcome at 12 months post-injury (lower Glasgow Outcome Score Extended GOSE) than those with unilateral lesions (see result section).

Second, the same study is cited on that *“lesions on T2\*GRE have a better relation with outcome compared to FLAIR and DWI*(3).” In this paper we primarily studied the relationship between TAI lesions and consciousness at admission, and no analyses concerning the predictive value of TAI lesions on T2\*GRE compared to FLAIR or DWI were performed. However, in other studies we have shown that volume of TAI lesions on FLAIR and DWI was more closely associated with admission GCS scores and length of post-traumatic amnesia(2), as well as a better predictor for outcome than the number of traumatic microbleeds on T2\*GRE(4, 5).

Third, the authors stated that *“Several studies demonstrated a relation with the total number of lesions and outcome irrespective of location(..), but other studies did not find this relation.”* After the latter statement one of our papers was cited,(4) even though this study actually found a relation between outcome and both the total number of TAI lesions on DWI in the whole brain and also in different sublocations (Table 3 and Table 4). Moreover, the number of TAI lesions on DWI in corpus callosum was emphasized as particularly important in the multivariable models in the mentioned study(4).

We acknowledge all scientific efforts to improve MRI classification systems, which in turn can improve future management of patients with TBI. With that goal, we are currently working in an international collaboration (ERA-NET NEURON) for an improvement of the current TAI-MRI grading scale(2).

#### References

1. van Eijck MM, Herklots MW, Peluso J, Schoonman GG, Oldenbeuving AW, de Vries J, van der Naalt J, Roks G (2020) Accuracy in prediction of long-term functional outcome in patients with traumatic axonal injury: a comparison of MRI scales. *Brain Inj.* doi: 10.1080/02699052.2020.1741683
2. Moe HK, Follestad T, Andelic N, et al (2020) Traumatic axonal injury on clinical MRI: association with the Glasgow Coma Scale score at scene of injury or at admission and prolonged posttraumatic amnesia. *J Neurosurg* 1–12
3. Moe HK, Moen KG, Skandsen T, Kvistad KA, Laureys S, Håberg A, Vik A (2018) The influence of traumatic axonal injury in thalamus and brainstem on level of consciousness at scene or admission: A clinical magnetic resonance imaging study. *J Neurotrauma* 35(7):975–984

- 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9
  - 10
  - 11
  - 12
  - 13
  - 14
  - 15
  - 16
  - 17
  - 18
  - 19
  - 20
  - 21
  - 22
  - 23
  - 24
  - 25
  - 26
  - 27
  - 28
  - 29
  - 30
  - 31
  - 32
  - 33
  - 34
  - 35
  - 36
  - 37
  - 38
  - 39
  - 40
  - 41
  - 42
  - 43
  - 44
  - 45
  - 46
  - 47
  - 48
  - 49
  - 50
  - 51
  - 52
  - 53
  - 54
  - 55
  - 56
  - 57
  - 58
  - 59
  - 60
4. Moen KG, Brezova V, Skandsen T, Håberg AK, Folvik M, Vik A (2014) Traumatic Axonal Injury: The Prognostic Value of Lesion Load in Corpus Callosum, Brain Stem, and Thalamus in Different Magnetic Resonance Imaging Sequences. *J Neurotrauma* 11:1–11
5. Moen KG, Skandsen T, Folvik M, Brezova V, Kvistad KA, Rydland J, Manley GT, Vik A (2012) A longitudinal MRI study of traumatic axonal injury in patients with moderate and severe traumatic brain injury. *J Neurol Neurosurg Psychiatry* 83(12):1193–200

For Peer Review Only