Use of antipsychotics after traumatic brain injury

Aaisha Khan¹

Received: 18 September 2020 / Accepted: 22 September 2020 / Published online: 25 September 2020
© Royal Academy of Medicine in Ireland 2020

Dear Sir

Traumatic brain injury (TBI) occurs when an external force is applied to the head leading to alterations in brain function including decreased level of consciousness, post traumatic amnesia (PTA) and changes in behaviour and cognition.

The use of antipsychotics to treat post traumatic agitation is controversial. Their effects on cognition and recovery are poorly studied. Antipsychotics may cause excessive drowsiness, exacerbate cognitive deficits and inhibit neuronal recovery.

Environmental and behavioural modifications are usually the first-line treatments in such cases where agitation persists. It is not an uncommon practice to prescribe antipsychotic drugs most commonly haloperidol for acute TBI patients who exhibit aggression or restlessness. However, this practice is not without controversy, as several studies have shown that [psychotropic medications](#), especially the typical antipsychotic drugs, may slow down the recovery from brain injury [1].

Haloperidol which is usually given to manage agitation can prolong PTA, cause motor restlessness (akathisia) and increased confusion. Development of neuroleptic malignant syndrome in TBI patients treated with haloperidol should be a concern for clinicians since these patients may be at greater risk for this adverse event [2].

On the other hand, atypical antipsychotic agents that demonstrate much less effect on the D2 dopamine receptors and mediate their clinical effect via other neurotransmitter systems might be superior to the typical agents in the TBI population given their potential for reduced side effects and less deleterious effects on recovery. These include risperidone, olanzapine, quetiapine and ziprasidone, all of which have been found to be beneficial in the treatment of delirium.

Quetiapine may provide quicker post traumatic delirium-related symptoms resolution, fewer episodes of agitation and a

greater rate of transfer to home or to rehabilitation. Quetiapine is noteworthy for its very low incidence of extrapyramidal symptoms. Some authors suggest that quetiapine may improve cognitive function when used for behavioural management [3].

Similarly, olanzapine has shown to reduce irritability, aggressiveness and insomnia between weeks 1 and 3 of treatment [4].

It is difficult to draw definitive conclusions regarding the use of typical versus atypical antipsychotic agents after TBI based on available literature; hence, large-scale randomised controlled trials are needed to develop formal guidelines and effective responses to the challenging issue of post TBI aggression.

Compliance with ethical standards

Conflict of interest The author declares no conflict of interest.

References

1. Pendleton J. Haldol and Traumatic Brain Injury. <https://www.goodtherapy.org/blog/haldol-traumatic-brain-injury-recovery-0424129>. Accessed 16 Sept 2020
2. Bellamy C, Kane-Gill S, Falcione B, Seybert A (2009) Neuroleptic malignant syndrome in traumatic brain injury patients treated with haloperidol. *J Trauma* 66(3):954–958. <https://doi.org/10.1097/ta.0b013e31818e90ed>
3. Elovic E, Jasey N, Eisenberg M (2008) The use of atypical antipsychotics after traumatic brain injury. *J Head Trauma Rehabil* 23(2): 132–135. <https://doi.org/10.1097/01.htr.0000314532.07530.e5>
4. Williamson D, Frenette A, Burry L et al (2019) Pharmacological interventions for agitated behaviours in patients with traumatic brain injury: a systematic review. *BMJ Open*. 9(7):e029604. <https://doi.org/10.1136/bmjopen-2019-029604>

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

✉ Aaisha Khan
aaishakhan678@gmail.com

¹ National Rehabilitation Hospital, Dublin, Ireland