



Exacerbation of Choreiform Movements Following Severe Traumatic Brain Injury

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ABSTRACT

A male in his 20s with intellectual disability and epilepsy suffered a traumatic brain injury. He exhibited choreiform movements which worsened after his brain injury and caused him to become dependent for all activities of daily living and ambulation. Risperidone was initiated and provided a significant improvement in his movement disorder, which overall decreased his burden of care.

CASE DESCRIPTION

An adopted 29yo male with intellectual disability and epilepsy suffered a traumatic brain injury (TBI) after falling during a seizure in the spring of 2020. He was brought to the ED where a CT head demonstrated a small acute subdural hemorrhage and subarachnoid hemorrhage within the right interhemispheric fissure and sulci.

Prior to his injury he was enrolled in special education classes in high school. His highest level of education was completion of high school. He never worked due to a short attention span and collected social security for intellectual disability. However, he was verbal, cooked his own meals, and did not require assistance for his activities of daily living (ADLs). He lived with his father who was able to provide additional support for instrumental activities of daily living (iADLs), such as medications and finances. However, after a seizure in 2019 he became wheelchair bound, required assistance with ADLs, and hired a home health aid for additional support at home. Moreover, his language was affected, and he was no longer independent from a communication standpoint. He was able to vocalize when he needed help, but he had difficulty communicating specifics. He also developed a hyperkinetic movement disorder, but it did not interfere with his care.

After his latest seizure and TBI in 2020 he became non-verbal and dependent for all ADLs, iADLs, and ambulation. His movement disorder was exacerbated and adopted a severe form of chorea and ballism. For protection from accidental self-harm, he required a padded wheelchair and rail bed. The chorea and ballism interfered with his care, ambulation, safety, and even a safe discharge home. Placement to a skilled facility was also difficult due to the amount of safety measures and constant supervision he required. He remained in a rehabilitation hospital for over four months while medications were trialed. Olanzapine and clonazepam had little success in controlling his movements and significantly decreased his arousal. Risperidone 2mg twice daily was started instead with significant improvement in the frequency and intensity of chorea. It also did not overly sedate him.

DISCUSSION

Movement disorders are a common neurological sequela of brain injury and cause significant functional impairments. Medications most effective in the treatment of chorea and ballism are those that interfere with central dopaminergic function, i.e., Haloperidol, Risperidone, Chlorpromazine, etc. Tetrabenazine is a first-line agent for the treatment of chorea and ballism due to its rapid onset of action and low side effect profile. However, Tetrabenazine is difficult to prescribe because it is only FDA approved for patients with genetically proven Huntington's Disease. It was suspected that the patient's biological mother had Huntington's Disease, but the patient was never able to complete genetic testing. Thus, we were unable to trial him on Tetrabenazine. Instead, Risperidone 2mg twice daily proved to be an effective medication. Ultimately, a superior treatment algorithm for posttraumatic chorea and ballism movement disorders does not exist, but perhaps Risperidone can offer favorable results to future patients.

CONCLUSION

We present the case of a patient with a neurodegenerative disorder characterized by chorea and progressive neurocognitive decline who presented to an inpatient rehabilitation facility following a traumatic brain injury with worsening choreiform movements. Risperidone was effective in improving the patient's symptoms. Further research is needed in order to establish guidelines for treatment of movement disorders following brain injury and to better understand the effect of brain injuries on primary movement disorders.

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