P13. 4-Aminopyridine for Post-Concussion Symptoms

Andrew Hornstein, Katrina Stidham, Steven Lichtman, Glenn Seliger, Brian Quail, Jodi Brangaccio, Michael Lipton, Amanda Muldoon, Tovah Gardin

Background: A subset of patients who have sustained a concussion report persisting, often disabling symptoms. The etiology and specificity of post-concussion symptoms is unclear. Eye movement disorders have been reported to significantly co-occur with other post-concussion symptoms. **Objective:** To examine if 4-aminopyridine reduces post-concussion symptoms. 4-aminopyridine is a potassium-channel blocking agent that improves conduction in demyelinated axons. It has also been reported to stabilize functioning of calcium-channels in cerebellar Purkinje cells, resulting in clinically significant improvement of cerebellar functioning in some congenital ataxias and eye movement disorders. **Methods:** We present a single subject study of a patient with chronic incapacitating post-concussion symptoms and eye movement disorder, with findings on diffusion tensor imaging consistent with traumatic axonal injury. Four years after his mild traumatic brain injury, a trial of 4-aminopyridine was conducted, utilizing a single subject, blinded experimental protocol. Neuropsychological testing, standardized symptom ratings, and videonystamographic examinations were administered. **Results:** The data reinforce clinical impression of beneficial medication effect, e.g. improvement on videonystamography of centrally mediated nystagmus on dix-hallpike maneuver.

Conclusion: Further study of the potential effect of 4-aminopyridine on post-concussion symptoms appears warranted.