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CARING VISION THERAPY & NEURO-VISION REHABILITATION CENTER

Neuro-Optometric Rehabilitation In A Condition With Oscillopsia Post-Traumatic Brain Injury

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BACKGROUND

- Traumatic brain injury (TBI) commonly impacts the connections and interactions between signals from sensory, cognitive, motor, and signals transmitted via both visual and non-visual retinal pathways.
- Oscillopsia refers to the "illusory movement of the world". Oscillopsia occurs when there is a mismatch or disconnect, between the underlying neurological control/ command signal to the brain to move the eyes (i.e., corollary discharge) and the actual movement and related retinal-image motion.
- Patients have described the perception of oscillopsia as "shaking of the world" or having an "oscillating" visual world.
- Post traumatic brain injury the overall quality of life of the person has been affected and they tend to depend on others for basic life support which affects their mental health.

CASE SUMMARY

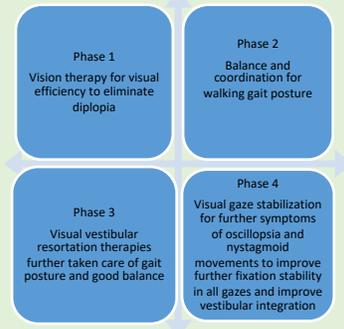
- A 57-year-old female presented to our clinic with a history of Oscillopsia for more than 30 years following a Traumatic Brain Injury.
- Post-injury objects in her visual field appeared to oscillate horizontally. The oscillations were not suppressed by eye closure, as she reported that imagined objects also oscillated. She had difficulty with her neck movements, which is making her vision much worse.
- She had a history of nystagmus since 2012 and a history of whiplash four months ago which caused severe vertigo and lack of co-ordination.
- She was prescribed prism glasses by an ophthalmologist due to multiple symptoms, including double vision, blurred vision at near and distance, eye fatigue, words moving around on the page, severe dizziness, exacerbated by head and neck movements.

INITIAL EXAMINATION

- Her fixation was unsteady and inconsistent, exhibiting mild nystagmus of low frequency and amplitude. Worth Four Dot Test showed intermittent diplopia at a distance. Near Point of Convergence (NPC) values were significantly receded at 25 cm and not sustained, leading to severe dizziness and eye strain upon convergence.
- Pursuits were markedly inaccurate, characterized by frequent fixation losses, particularly challenging in temporal gazes, and her saccadic accuracy was mildly reduced.
- Romberg test (also known as Romberg's sign) was performed to assess her balance problems that are related to proprioception, the result of this test was positive, and had a loss of balance when closing her eyes during the test.
- Posturography was performed to identify the Balance and Fall Risk of the patient with eyes opened and closed, the results revealed that she had a High risk of falls and poor balance



TREATMENT PLAN

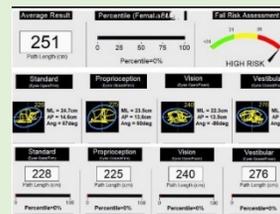


RESULT

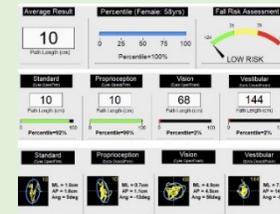


Pre-VT-Reading

Post-VT-Reading



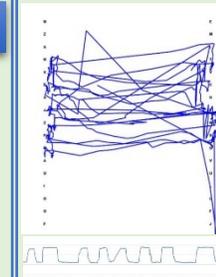
Pre-VT Posturography



Post-VT Posturography

DISCUSSION

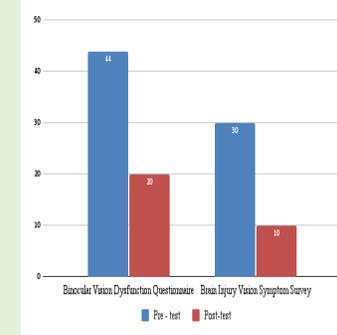
- Neuro-Optometric Rehabilitation gives a systemic approach to patients integrating visual, cognitive, motor, and sensory skills. Prognosis is very individualized as in neuroplasticity because neuroplasticity is the ability of neural networks of the brain to change and grow through reorganization by doing repetitive exercise.
- The efficacy of Neuro-optometric rehabilitation has been proved over a range of neurological-related visual problems through a variety of clinical and experimental methods.
- Post vision therapy the patient had a good amplitude of saccades and smooth pursuits. Fusion was noticed in the Worth four dot test and decreased amplitudes of nystagmoid movements. Her oscillopsia was reduced.
- The patient demonstrated improvement in convergence abilities on both near and distance points of convergence in Base Out Random Dot Stretogram (VTS). The patient reported her quality of reading in daily life had improved and was able to read books from start to finish.
- The pre and post values of the Brain Injury Vision Symptom Survey (BIVSS) and Binocular Dysfunction Questionnaire (BDQ) showed a remarkable change in her overall quality of life.
- Gaze stabilization techniques have improved vestibulo-ocular movements and good balance was observed in the advanced Romberg test which improved her overall gait and posture.



Pre-VT-Saccades



Post-VT-Saccades



CONCLUSION

- The goal of Neuro-optometric rehabilitation therapy is to increase a patient's independent functioning in a multisensory environment.
- This case demonstrates the importance of Neuro-Optometric Rehabilitation which helps patients with neurological dysfunctions to regain several visual and oculomotor skills needed for daily living.

REFERENCES

