



## OPTOMETRIC CARE OF THE PATIENT WITH ACQUIRED BRAIN INJURY

Vision dysfunctions are among the most common sequelae associated with acquired brain injury (BI). The anatomy and physiology of the vision system, the vascular and neural network of the brain, and the dynamics of head trauma all contribute to the high incidence of visual dysfunction with brain injury. Causes of brain injury which may contribute to visual dysfunction include blunt, penetrating, or acceleration/deceleration trauma; suffocation/hypoxia; pharmacological toxicity; and cerebral vascular accidents.

Injury to the eye or the sensory, motor or associated areas of the visual system of the BI patient may result in the development of the following:

- Strabismus
- Reduced visual acuity at far
- Reduced visual acuity at near
- Visual field loss
- Ocular motility disorders
- Binocular vision dysfunctions
- Accommodative disorders
- Difficulties in visual perception
- Deficits in visual motor integration

Since activities of daily living involve effective integration of visual information processing and visual motor performance, the BI patient is frequently handicapped as a consequence of disruption in the visual system.

A significant number of patients with BI will present with signs and symptoms which indicate a vision problem. These include, but are not limited to, the following:

### **Symptoms**

- Double vision
- Blurred vision
- Reduced ability to sustain attention on visual tasks
- Dizziness
- Headaches
- Eye strain
- Confusion related to visual tasks
- Difficulty reading

### **Signs**

- Eye turn
- Closing or covering one eye
- Head tilts or turns
- Bumping into objects
- Abnormal posture
- Balance and coordination problems
- Poor judgement of depth
- Reduced ability to accurately localize objects

## OPTOMETRIC EVALUATION AND MANAGEMENT

The patient with BI should be evaluated by an optometrist who has training and clinical experience in the care of eye and vision problems related to brain injury. As a member of, or consultant to, the patient's rehabilitation team, the optometrist is able to relate specific visual dysfunctions to patient's symptoms and performance in order to provide remediation and guidance. This will increase the effectiveness of the overall rehabilitation program, which is often highly dependent upon vision.

The evaluation of the patient with brain injury may include, but is not limited to, the following:

- Comprehensive eye and vision examination
- Extended sensorimotor evaluation
- Higher cerebral function assessment of visual information processing
- Low vision evaluation
- Extended visual field evaluation
- Electrodiagnostic testing

Optometric management of the patient with brain injury may incorporate any of the following:

- Treatment of ocular disease or injury either directly or by comanagement with other health care professionals
- Treatment of the visual dysfunction utilizing lenses, prisms, occlusion, low vision devices, and/or optometric vision therapy
- Counseling and education of patient, family, or caregiver about the patient's visual problems, functional implications, goals, prognosis, and management options
- Consultation with other professionals involved in the rehabilitation and health care of the patient.

## **CONCLUSION**

Optometrists provide essential vision services in the rehabilitation process of the patient with brain injury, including diagnosis, treatment and consultation in order to maximize the patient's outcome. The ultimate goal of these services is to improve the patient's quality of life.

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