CONSULTING PATIENTS WITH HEMIANOPIC VISUAL FIELD CUTS

Answers to common questions.

BY JACQUELINE THEIS, OD

The other day I received an email from a colleague with a patient who developed a left hemianopia, or visual field cut, after a stroke. The colleague was asking if there was anything we could do, and my excitement rose as I replied ecstatically, “Yes, absolutely!”

The fact is, there is a lot we can do for patients with sudden onset vision loss, most of which has to do with educating them. This article identifies the main areas to cover with patients facing these visual field deficits, with key points to include in each.

GET VISUAL

The first thing we can do is educate patients about their visual field loss. The more they can understand their vision loss, the better they can compensate for it. It is incredibly confusing for patients to understand the complexities of the afferent visual pathway; let’s be honest, it took us all hours, days, and weeks in optometry school to grasp that up is down and left is right. The best way to explain this to patients is with a simplified visual (Figure 1).

By the time patients come to your office, they often know that there’s been damage to their parietal, temporal, and/or occipital lobes and their vision is “off.” Maybe they describe it as fuzzy or missing in the left or right eye, or they just notice that they keep bumping into things. They often have a difficult time understanding that both of their eyes are healthy even though they’ve lost vision on the right or left side. I use a simplified view of the afferent visual pathway (Figure 1) to show them how information on the left or right side of the environment or visual field gets projected to both eyes initially, but then crosses over at the optic chiasm so that all the information on the left side of our vision is stored on the right side of the brain and vice versa. I then place an X on the spot where the patient had the brain injury and circle the pattern of visual field loss he or she has.

GET FACTUAL

Visual field loss is more common in men than in women, and the incidence increases exponentially with age.1 Homonymous, retrochiasmatic visual field defects are most commonly caused by stroke, head injury, or brain tumors, but they can occasionally occur due to demyelination and other rare causes.2 Approximately 20% to 67% of stroke patients have some type of visual field defect,3 and
studies suggest that 45% to 67% of patients will have visual field loss in the acute period and 8% to 25% in the long term. The most common types of visual field defect are hemianopia due to occipital lobe damage, followed by inferior quadrantanopia from parietal lobe damage and superior quadrantanopia from temporal lobe damage.4

**GIVE IT TO THEM STRAIGHT**

Every patient wants to hear that this is going to get better. Most likely, before referral to you, a previous doctor told the patient it is possible to self-resolve and they just have to wait and see. In my experience, this “wait and see” consultation can exacerbate anxiety and leave patients ill-prepared for the more likely scenario of permanent vision loss. Additionally, the unrealistic hope of self-resolution can delay the patient’s participation in visual field rehabilitation strategies and prolong adaptation.5

You can refer to multiple studies on stroke-related visual field loss to guide your patient’s expectations for improvement. I find that honesty and statistics can set realistic expectations for patients without eliminating hope. Of patients with visual field loss after stroke, only 7.5% will have full field recovery, 39% will exhibit partial recovery, and the majority of patients, about 52%, will have unchanged and permanent visual field loss.4

**IMPROVING CHANCES OF VISUAL RECOVERY**

As yet, there is no identifiable factor associated with experience of full visual field recovery after stroke-related loss. Studies assessing age of stroke onset, gender, area of stroke lesion, and type of stroke have been unable to find any clinically significant correlation or causation. The literature consistently notes, however, that among patients who experience recovery, around 50% will start to notice recovery in the first month,6 and the amount of recovery decreases as the time from injury increases. Generally, if the patient hasn’t experienced any improvement in the first 6 months, it is unlikely that the visual field will recover. Furthermore, patients with field loss due to vascular disease have a poorer prognosis for spontaneous recovery than those with field loss due to non-vascular etiologies.2,4

When I see patients in the acute or subacute stage (< 3 months post injury), I tell them to prepare for their vision loss to be permanent so that we can work on rehabilitation strategies to start improving their quality of life. If their visual field improves, what a wonderful surprise that will be. But if it doesn’t, then the patient will already be adapting. I usually repeat visual field testing at 1, 3, 6, and 12 months after injury.

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**AT A GLANCE**

- Patients often have a difficult time understanding that both of their eyes can be healthy even though they’ve lost vision on one side. Use a simplified view of the afferent visual pathway to explain the loss.
- Honesty and statistics can set realistic expectations for patients without eliminating hope.
- Of patients with visual field loss after stroke, only 7.5% will have full field recovery, 39% will have partial recovery, and most patients, about 52%, will have unchanged and permanent visual field loss.
ADAPTING TO VISUAL FIELD LOSS

More than likely, patients will not spontaneously learn to adapt to their visual field loss without rehabilitation. Around 25% of patients will spontaneously learn to adapt to their visual field loss by using appropriate compensatory hypermetric saccadic gaze shifts. Without guided rehabilitation, most patients will adapt a disorganized hypometric saccadic scan path toward the side of vision loss. This will lead to increased time for visual search of their environment, which will slow visual processing speed and lead to increased risk of falls and collisions, decreased ability to participate in activities of daily living such as reading and cooking, and ultimately frustration, anxiety, depression, and social isolation.

VISUAL FIELD LOSS AND READING DIFFICULTY

A well-trained clinician is needed to decipher whether a patient’s inability to read is due to central visual field restriction, reduced acuity, saccadic dysmetria diplopia, or higher-order visual processing or language disorders. The most efficient way to diagnose hemianopic alexia (the inability to read due to hemianopic visual field loss) is by using an Amsler grid to determine how much macular sparing or central visual field the patient has left (Figure 2). Efficient perceptual reading requires the patient to be able to see 13 letters to the right of fixation (5° of macular sparing) and 6 letters to the left of fixation (3° of macular sparing).

Right-sided vision loss impairs full word detection, and left-sided vision loss causes inefficient regression saccades to the beginning of the text line. Patients with less than 5° of macular sparing will have impaired reading ability and would benefit from guidance on adaptations such as decreasing font size to fit reading material within their central visual field; use of magnifiers, miniifers and line guides; and referral for field-expanding prisms.

Patients who have more than 5° of right central visual field and more than 3° of left central visual field remaining will have the ability to read fluidly, so it is unlikely in these cases that the visual field is causing the patient’s complaint, and the clinician must decipher what is the true cause.

TREATMENT OPTIONS

There are three types of evidence-based visual field rehabilitation. In one method of rehabilitation, specialty types of optical devices and prism lenses are used to artificially bring the visual environment that falls into the blind field into the patient’s seeing field. Mechanisms for this include yoked prism, the Peli Lens (Chadwick Optical), Gottlieb lens, and sector prisms (Figure 3).

A second type of rehabilitation is compensatory oculomotor rehabilitation, in which patients are trained to adapt a more efficient oculomotor scanning pattern to overcompensate for their visual field loss. In the third approach, adaptive rehabilitation, patients are educated on how to adapt their environment to their visual field loss by using devices such as line guides, walking canes, and motion sensors, and by removing obstacles from their environment to improve their quality of life and safety.

Patients who wish to try this type of rehabilitation can be referred to optometrists with training in neurooptometry, low vision, and double vision; occupational or physical therapists; and blind and low vision rehabilitation centers.

KEEP THE WHOLE PATIENT IN MIND

Sudden onset of vision loss can turn a person’s world upside down. It changes the patient’s ability to participate in activities of daily living, limits their independence by revoking their driving privileges, and changes family dynamics, as spouses or children may be forced to become caretakers. It’s important to ask the patient and his or her family members how they feel about their vision loss, as anger, anxiety, guilt, and depression can be normal.

I encourage and refer all of my patients and their family members to seek a psychological support system.
through their primary care, physical medicine and rehabilitation physician, psychologist, and/or psychiatrist. We need to make sure that we empower our patients to see and do the things they enjoy, and a large part of that is addressing how they feel.


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