Nystagmus: An Overview and Optical Approaches for Treatment with Contact Lenses

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Introduction

Nystagmus is a condition that presents with a regular rhythmic and involuntary to and from movement of the eyes. These oscillations in eye movements can lead to many visual complications such as poor vision, issues with tracking objects, loss of depth perception, dizziness, and oscillopsia. The amount of different etiologies, symptoms and treatments for nystagmus can be complex and overwhelming and so this poster will present a case report of a patient with congenital nystagmus who was treated with soft contact lenses and will also be an overview of nystagmus with a focus on optical approaches to treatment as well as promising new forms of management.

Case Description

This case of a patient with a history of congenital nystagmus that was seen and treated with contact lenses. The patient is a 32-year-old Hispanic female that presented for a complete eye exam. The patient did not present with any correction; however, the patient had been prescribe glasses and does not wear them.

CC: The patient stated that she has always had blurred vision but felt like it was getting worse at the time of visit. She stated that she has had nystagmus since she was infinite.

HX: Patient was healthy without any current medical conditions
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Exam: The patient's entering acuity without any correction was 20/100-3 OD : 20/70-2 OS.

Slit lamp: Nystagmus was noted to be horizontal and mostly pendula; however, she would have occasional jerks to the left. The nystagmus remained horizontal with the up gaze and decreased in intensity with convergence.

All other entrance testing was normal as well as the slit lamp exam and funduscopic findings. With manifest refraction, the patient's vision had a slight improvement on 20/80 OD and 20/70 OS.

Contact lens Fitting reasoning: to see if the reduced vision was due to the inability of the patient to be able to see through the optical center with spectacle correction due to the constant movement of the eyes.

On the initial visit, the patient was fit with a customized soft contact lens due to the lens prescription was outside the normal ranges for standard lenses, and not available in our trial set. With lenses, the vision improved to 20/70 OD from 20/100 and 20/50 OS from 20/70 with is a 22.22% increase is vision. With contact lens wear, it was noted that the patient's nystagmus appeared less pronounced.

Discussion

When referring to the trajectory of the oscillations, the two main types of nystagmus are jerk nystagmus and pendular nystagmus.
Jerk nystagmus is the most common type of nystagmus. There is a "slow phase": where the eye drifts from the fixation point and then has a "fast phase", where the eye jerks back to correct the movement. The direction of the nystagmus is named by the direction in which the eye moves to "correct" itself. Downbeat, upbeat, horizontal, torsional, or mixed nystagmus, all fall into categories that are all the physiological forms of nystagmus. These include optokinetic nystagmus, Vestibular nystagmus, and end-gaze nystagmus[1].
Pendular nystagmus is known for its more uniform oscillations that do not have a fast phase. These movements are more regular and have symmetrical movements horizontally or vertically. A congenital pendular nystagmus often shows small saccadic movements that arrest the eyes at one side of the oscillations or can have a jerk nystagmus in extreme gaze [1].
Physiologic nystagmus is considered normal, but it must meet six criteria to qualify as physiologic.

Representative:

Glasses Wear	**Contact lens wear**
Requiring Focal	**Continuous Focus**
2nd to eye movement	**Regardless of eye**

Physiologic Nystagmus are :
The nystagmus must be present only in extreme horizontal gaze considered to be 30 to 40 degrees of eccentricity,

1) the oscillations must be purely horizontal with the fast phase in the direction of the gaze,
2) it must last for less than 3 to 4 beats,
3) it must have a low amplitude,
4) it should be equal in amplitude and waveform in both eyes,
5) it should be unaccompanied by any neuro-ophthalmic pathology 6

This type of nystagmus can be induced by rapid motion of the head, instillation of hot or cold water into the ear canal or viewing an optokinetic strip. Any nystagmus that does not meet all six of the criteria mentioned before is considered as pathologic.

There are three established mechanisms for pathologic nystagmus:

1) visual loss in one or both eyes,
2) vestibular dysfunction
3) neural integrator dysfunction.

If a nystagmus is enduring and in the presence of adequate vision, the result is from a brain stem dysfunction. After it is established that a patient has pathologic nystagmus, it is important to determine if the nystagmus is congenital or acquired 6.

Conclusion:

Nystagmus is a complex condition that requires studies to determine proper treatments to provide patients for their specific needs. With the large amount of different etiologies and variable symptoms patients experience, the answer to which treatment works best is not straightforward. There are limited amounts of studies on patients with acquired nystagmus and contact lenses, and not studies comparing the effects of contact lenses on congenital nystagmus syndrome compared to acquired nystagmus. As seen with acuity and the contact lenses may have had a small effect of dampening the nystagmus intensity, although quantitative measurements were not taken. One factor is that patients preferred contact lenses versus wearing spectacles. In the end, the most important goal in treatments is improving the patient's quality of life. If these patients feel that this type of optic the patient mentioned in this paper, there was a small improvement in visual al correction is helping, whether it is improvement in vision, dampens the nystagmus intensity or even cosmetic, treatment is recommended.

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