Emory Eye Center
News Releases

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Emory Eye Center finds eye drops to treat childhood disorder can work as well as patching the eye

(ATLANTA) A National Eye Institute (NEI) study, conducted at more than 40 sites nationwide including Emory Eye Center, has found that atropine drops, given once a day to treat amblyopia or lazy eye -- the most common cause of visual impairment in children -- work as well as the standard treatment of patching one eye. This research finding in the Amblyopia Treatment Study may lead to better compliance with treatment and improved quality of life in children with this eye disorder. These results appear in the March issue of Archives of Ophthalmology.

After six months of treatment, researchers found that the drug atropine, when placed in the unaffected eye once a day, can work as well as eye patching and may encourage better compliance. Compliance is an important factor in the success of amblyopia therapy. Treatment should be started when the child is young, since amblyopia is more effectively treated in children under seven years of age. Timely and successful treatment for amblyopia in childhood can prevent lifelong visual impairment.

"These results are encouraging because in some patients with amblyopia, the drops are an attractive alternative to patching therapy," says Scott Lambert, MD, a pediatric ophthalmologist at Emory Eye Center and an investigator in the NEI study. "The drops are certainly easier to administer than trying to keep a patch on young patients who may attend daycare or who may be allergic to the patch adhesive. Additionally, the drops are a good alternative for older children who may have a sense of stigma with a patch," he says.
Amblyopia, or lazy eye, is a condition of poor vision in an otherwise healthy eye because the brain has learned to favor the other eye. Although the eye with amblyopia looks normal, there is interference with normal visual processing that limits the development of a portion of the brain responsible for vision. The most common causes of amblyopia are misalignment of the eyes (crossed eyes) or significant differences in refractive error, such as farsightedness or nearsightedness, between the two eyes. Amblyopia usually begins in infancy or childhood. It is estimated that as many as three percent of children in the U.S. have some degree of vision impairment due to amblyopia.

Treatment for amblyopia is most effective when started in young children less than seven years old. Response to treatment in older children is much less effective. Most eye care professionals treat amblyopia by placing an opaque adhesive patch, or "eye bandage," on the skin to cover the unaffected eye. This forces the child to use the eye with amblyopia, which stimulates vision in the eye with amblyopia and helps the part of the brain that manages vision to develop more completely.

However, many children do not like the appearance of the eye patch and the accompanying social and psychological stigma and will not fully cooperate, which can lead to treatment failure. Also, patching forces a child to use an eye that has poor vision, often making compliance difficult for active children. Unless it is successfully treated in early childhood, amblyopia usually persists into adulthood, and is the most common cause of monocular (one eye) visual impairment among children and young and middle-aged adults. Consequently, it is crucial for children to comply with treatment.

The atropine eye drop works by temporarily blurring vision in the unaffected eye, thereby forcing

the eye with amblyopia to be used. This strengthens it and improves vision. The advantage of atropine treatment is that the parent simply places a drop in the child's eye once a day. With patching, the parent must monitor the child wearing the patch for six or more hours each day for many weeks or months.

In the Amblyopia Treatment Study, 215 children were randomly assigned to receive patching, and 204 were assigned to receive atropine eye drops. Researchers found that 79 percent of those receiving the eye patch were treated successfully, and that 74 percent of those receiving the atropine were treated successfully. This difference is clinically insignificant. Although researchers found that vision in the amblyopic eye improved faster in the patching group, the difference in the two groups at six months was small and not significant.

"The daily burden to administer treatment for amblyopia falls on the parent," said study chairman Michael Repka, M.D., professor of ophthalmology and pediatrics at the Wilmer Eye Institute of Johns Hopkins University School of Medicine in Baltimore. "This study shows that one drop a day of atropine works as well as patching the eye for some children with amblyopia. Since both patching and atropine work equally well, the choice of treatment can be made by the eye care professional in consultation with the parent."

The children who were treated in this study will continue to be followed until April 2003, allowing researchers to learn whether there is any longer term advantage to treating amblyopia with either patching or atropine.

The study was conducted by the Pediatric Eye Disease Investigator Group at 47 clinical sites throughout North America. The study was funded by the National Eye Institute and coordinated by the Jaeb Center for Health Research in Tampa, Florida, and the Wilmer Eye Institute of Johns Hopkins University in Baltimore.
B-Roll available by calling 301-496-5248. Photos and other materials available in downloadable, camera-ready format on the NEI website at http://www.nei.nih.gov/amblyopia

The NEI is part of the National Institutes of Health (NIH) and is the Federal government's lead agency for vision research that leads to sight-saving treatments and plays a key role in reducing visual impairment and blindness. The NIH is an agency of the US Department of Health and Human Services.

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