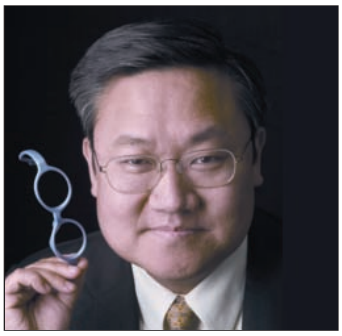

SPECIALISTS' CORNER

The Importance Of Performing The Red Reflex Test

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Newborn children are not born with 20/20 vision. There is a brief window of time during the first year of life where the retina and visual cortex learn to work together to produce the perception of formed vision. Should anything interfere with creating a sharply focused retinal image, the results can be dense and permanent amblyopia.

Assessing visual function in a newborn and pre-verbal child can be very challenging. The most effective way to detect ocular pathology in this population is the red reflex test, which can identify cataracts, retinal detachments and anisometropia.

In 2008, the American Academy of Pediatrics (AAP) revised its policy statement on performing red reflex tests. It recommends that:

1. All newborn children have testing done prior to discharge from the nursery and on ALL subsequent exams.
2. The results must be documented as to whether the reflexes in both eyes were equivalent in color, intensity and clarity.
3. Children with an abnormal reflex should be referred immediately to an ophthalmologist for further evaluation.
4. The pediatrician must receive confirmation back from the ophthalmologist that the consultation was performed.
5. Children with a family history of hereditary eye diseases need to be referred to an ophthalmologist for evaluation.
6. If the parents describe a history consistent with leukocoria, the pediatrician should refer the patient to an ophthalmologist to evaluate for possible retinoblastoma. (This last recommendation is particularly important especially in an era where the parents may notice an unequal red reflex with digital flash photography.)

Even in those children with ocular pathology, the red reflex test can be challenging to perform. In 2003, a study (Abramson et al, Pediatrics) reviewed 1632 patients with retinoblastoma but no family history, and found that family members made the initial observation 80% of the time while the pediatricians were the first to recognize the abnormality only 8% of the time. Much of this is now attributed to the frequency of parents taking flash photography using digital cameras.

Since the red reflex test evaluates primarily the retina within the macula, it may miss a retinoblastoma lesion that is off in the peripheral retina, whereas a flash photograph taken at an angle may identify a tumor in the periphery. Because of these statistics, it is very important for the pediatrician to follow the AAP recommendation for referral to an ophthalmologist should the parents comment on an abnormal reflex even in the setting of a normal test in the office.

There are several simple ways to increase the accuracy of the red reflex test. The first is to make the assessment in a dimly lit or dark room. It can take 10 seconds from the time the lights go down to the time the pupil reaches maximal dilation.

The second is to stand 4-6 feet away from the child and look through the direct ophthalmoscope so that the entire face is in clear focus. Then use a large enough aperture size so that both eyes are illuminated. By using simultaneous illumination, it is much easier to compare the reflex.

An absent reflex in one eye may result from a cataract. Conversely a white reflex can occur in a child with retinoblastoma or a retinal detachment due to Coats' disease. In those cases where both eyes have a red reflex but one is brighter than the other, the child may have different refractions resulting in anisometropic amblyopia.

All pediatricians need to be comfortable performing this simple yet powerful test. In many cases, pathology detected by an abnormal red reflex can be treated and in some cases may save a child's eye or life. For more information about red reflex testing or retinal diseases, please visit: www.TheVisionCenterAtCHLA.org and click on the Retina Institute.

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