PR3VENT MEDICAL AI

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Protecting Newborn Vision

Retinal Imaging is a substantial improvement in baby screening

Retinal imaging is vastly more sensitive in newborns than the red reflex test (RRT), capable of detecting ocular abnormality in newborns (incidence 5%) who should see a specialist. The generally accepted understanding in pediatric ophthalmology is that congenital or birth trauma-related abnormalities in the eye can be effectively treated if identified early (in the first three months after birth). There are substantial concerns that, if abnormality is not detected early, vision loss may occur due to delayed treatment. To date, the only widely practiced eye screening for full-term newborns is the RRT[1]. This test does not test for any specific condition. It is useful for detecting some disorders, but misses many clinically relevant abnormalities. However, retinal imaging is standard of care for premature infants and 350,000+ full-term newborns have been examined globally with consistent findings of clinically relevant pathology.

Infant and Childhood Screening

Beyond RRT, the only other formalized assessment of eye health typically occurs at age 5-6 years with an assessment of visual acuity. Decreased visual acuity at this point may be the first indication of an underlying pathology that has caused vision loss. Yet, by that age, the vision loss is often irreversible. It is unfortunately common that any pathology or decreased vision discovered according to current routine clinical practice is difficult to treat or not amenable to treatment due to chronicity of the problem.[2,3] According to the Association of Pediatric Retina Surgeons (APRS), current methods of newborn retinal screening are not adequate, and an APRS expert panel recommends eye imaging to diagnose macular hemorrhage and other conditions that may require urgent referral to pediatric ophthalmologists.[4]

Major vision-threatening conditions identified with retinal imaging

Some of the more common retinal disorders in full-term newborns are macular hemorrhage, retinoblastoma, and congenital eye diseases, among others. If not detected and treated early,

[1] The RRTis recommended by the American Academy of Pediatrics to be performed at every well-baby exam until age 18 months

these can lead to significant and permanent vision loss or, in the case of retinoblastoma, can potentially become life-threatening.

How to use retinal imaging?

Imaging is requested by the physician, and is performed before discharge by highly trained nurses or ophthalmic technicians. Expert clinicians at Stanford University Byers Eye Institute deliver precise and reliable results backed up by Pr3vent's newborn eye analytics AI. The physician will receive a report that identifies the need for further examination with relevant notes from the expert grader. When needed, the baby is referred for ophthalmological care without delay, leading to earlier intervention and better outcomes.

How is retinal imaging performed?

Pr3vent provides neonatal retinal imaging using the latest pediatric camera cleared by the U.S. Food and Drug Administration (FDA). Mydriasis is necessary to accomplish the examination and is safely achieved with cyclopentolate hydrochloride and phenylephrine hydrochloride solution, according to FDA approved labeling and the recommendation by the American Academy of Ophthalmology.[4,6] The images can be archived and accessed for further review at any time.

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