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Editorial

A Promising Development in The Assessment of Ophthalmological Function in Pediatrics Could Be the Potential for a More Accessible and Efficient Pediatric Eye Care Service

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Nystagmus, retinopathy of prematurity, and retinitis pigmentosa, along with a wide variety of congenital eye anomalies, are among the most common ocular diseases in pediatrics, where abnormalities primarily occur in the retina.

The complexity in diagnosing eye problems in pediatrics is a significant challenge, due to the difficulties that pediatric patients face in following instructions and complying with examination procedures. This understanding is necessary for providing effective care.

The functional integrity of the retina in various retinal disorders is primarily evaluated using the flash electroretinogram (fERG). However, access to a system-based laboratory or recording unit for visual electrodiagnostic testing (EDT), which is a highly specialized service in many healthcare systems, can be a significant barrier to conducting tests on all patients who would benefit from them. The high cost of setting up the investigation unit, the dedicated environment required, and the rarity of trained individuals necessary to perform these investigations are significant obstacles. Additionally, the long waiting list exacerbates the burden on the pediatric patient population.

The nonsubjective nature of EDT makes it an ideal method for assessing ophthalmological problems in pediatrics. On the other hand, sedation of the pediatric patients is crucial for their evaluation using fERG, as it was primarily designed for adult patients.

Recently, a portable handheld full-field flash ERG device has been developed. Recent studies carried out in conjunction with this significant advancement have concluded that it can provide easier access to the visual EDT service for pediatric patients. RETeval® ERG portable unit, which is a fraction of the cost of a lab-based setup, can perform the more common electrophysiology assessments of the retina and measure the electrophysiological response of the brain to visual stimuli (pattern ERG and flash VEP, respectively).

Moreover, with this portable handheld RETeval device, the examiner can evaluate the retinal integrity of pediatric patients suffering from nystagmus without the need for patient sedation, unlike the routine ERG system.

The portable RETeval unit is capable of recording highly reproducible and diagnostically useful clinical ERGs, despite some significant differences in waveform composition compared to those obtained with more standard tabletop systems.

As a result, it is crucial to conduct further studies to understand the causes of the differences between the results collected by the RETeval and those obtained from the more standard tabletop unit. This caution is essential to avoid erroneous interpretation before using it in real-world clinical practice as a safe diagnostic device and screening tool in pediatric eye care services.