

World Prematurity Day: Strategies to Detect and Prevent Retinopathy of Prematurity

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Celebrated on November 17, 2018; the World Prematurity Day emphasizes on one of the very serious health problems that's observed across the globe. This particular health problem has been prevailing for centuries and continues to affect the mortality rate of infants worldwide. Babies born earlier than the normal time of birth are bound to face more health issues than the babies born on time. Premature babies are more vulnerable to long- and short-term health problems that affect their cognitive, respiratory, auditory and visual abilities [1]. World Prematurity Day intends to promote awareness of this particular health condition and promulgate guidelines, tools, and evidence-based solutions and recommendations to prevent and manage the health for babies born prematurely.

Premature babies are more prone to incur vision-related problems and develop eye diseases. Retinopathy of prematurity is one such visual impairment that occurs in babies born prematurely - before 32 weeks. In the condition of Retinopathy of prematurity, the retina in the eye is affected. Retina, essentially, is responsible to sense light and send signals to the brain so that the individual can interpret the visuals. Retinopathy of prematurity or ROP causes the growth of unwanted blood vessels on the retina of the infant and results in causing severe visual impairment and problems later. In extreme cases, the baby may even go blind [2].

ROP has become one of the significant reasons for blindness and visual impairment in the premature babies across the world. The infants in developing and developed counties are more likely to suffer from ROP than that of developed and western countries because of accessibility to more advanced screening capabilities. In India, 28 million children are born and 3.5 million of them are premature [3]. This ultimately puts such a huge number of infants to the risk of ROP and blindness subsequently. The country is facing rising cases of blindness in babies from both rural and district areas. India is experiencing the third epidemic of blindness due to ROP. Babies who tend to survive their premature birth are subjected to the risk of sight-threatening ROP [4]. An important reason for the prevalence of ROP in India is the lack of ROP screening among preterm infants and high-quality treatment.

In order to prevent ROP in India, it is imperative to screen all the preterm babies for the risk of ROP. To prevent ROP in infants, it is imperative to screen all the infants who are born at 30 weeks or less of gestational age. Also, babies who are born with a weight if 1500g or less should be screened for ROP [5]. According to the studies published in Canada, only one infant falling outside the bracket if gestational age of thirty weeks and less than 1250g of weight required treatment of Retinopathy of prematurity [6].

ROP takes longer to develop in the premature infants. To prevent the development of ROP among the premature babies, it is critical to identify the requirement of timely treatment and in minimum numbers of examination. The initial examination needs to be conducted on both postmenstrual age and chronological age. The first examination needs to be conducted between four and nine weeks. This, however, depends on the postmenstrual age at birth [7]. According to the study of Misra, Heckford, Curley, and Allen, the acute phase ROP screening can be stopped when there is a risk of development of severe ROP is no longer prevalent [8].

Considering the fact that India has a low number of ophthalmologists and the number of babies born each year has reached the figure of 3.5 million; it can be quite difficult to cater all the newborns. There is a huge demand and supply gap when it comes to infants and ophthalmologists in India. Hence, there is a need to tap technological solutions such as wide-angle retinal camera, image capturing technique utilized by trained technicians, and reviewing and reporting of the remote image by trained ophthalmologists [9].

Retinopathy of prematurity can result in permanent visual disability. There is a need for increased awareness amongst the public and pediatricians to enhance early identification and initiate treatment for the babies with ROP. Pediatricians need to be aware of the risk factors and screening protocols that are mandatory in order to prevent any serious outcomes and curtail the problem timely. Pediatricians where do have sufficient knowledge pertinent to ROP, they need to be given appropriate guidelines for risk factors and early identifications of the disease. Similarly, the responsibility lies on the public, too, who needs to be aware of the signs and symptoms indicating the development of ROP in premature infants. Being aware of these symptoms, they shall be able to get timely screening and treatment of ROP to avoid any severe outcomes in form of blindness or visual impairment [10].

Talking about the signs and symptoms of ROP, it is important for the parents to know what indicators to look at when their child is born before the appropriate time. Retinopathy of prematurity usually occurs when the blood vessels, responsible for feeding retina, have not grown completely. On premature birth, they stopped growing abruptly for some time and then resume the growth rather abnormally, resulting in visual problems and disorders [11]. There are three common ways to understand and identify ROP.

Identification by Zone

The zone denotes the position or location where the disease is located. The first zone or zone 1 is a small area that is present at the heart of the retina. It is the central visual area that includes the optic nerve. Zone 2 is the area that covers the middle of the retina, and zone 3 is the outer edge of the retina. The severity of the ROP increases as the zone decreases or lowers down.

Identification through Stage

The second way to identify ROP is through the stage. This describes how far has the disease progressed or developed. Stage 1 usually has a mild abnormal vessel development. The abnormality grows with the stages, and Stage 5 is denoted as the end stage at which the growth is highly abnormal and scarring is extensively severe [12].

Plus Disease

When the blood vessels themselves are twisted abnormally and have augmented, it initiates Plus disease. Diagnosis of plus disease or signs related to it is to be taken seriously. It is critical to get medical aid right away and decide what treatment is required [13].

Several of the symptoms for ROP take place within the eye, making it impossible for a person to locate or diagnose the problem. Hence, only an ophthalmologist can recognize and treat these signs and symptoms. Screening for ROP is recommended for all premature infants who are born at less than 30 weeks of gestation age or weighed less than 1250g. Also, infants who received supplemental oxygen supply are at risk of developing ROP.

To manage ROP, there are several treatment options including laser treatment and lens-sparing vitrectomy. The laser treatment executes peripheral ablation of the avascular retina for type 1 prethreshold ROP. This method utilizes a wide-angle viewing system to identify the skip areas. Additional laser treatment is conducted once the patient is treated. It is imperative for the patient to be closely monitored for plus disease and ridge elevation. Lens-sparing vitrectomy is performed essentially to reattach the retina and prevent the progression of the condition to stage 5 ROP. It also helps in clearing the visual axis.

There are several studies under progress that are working on proposing better management of ROP and usage of new retinal digital imaging. This particular advancement is likely to change the nature of ophthalmologists' role. There are new treatment modalities being assessed to block the antibodies through utilization of vascular endothelial growth factor [14].

To prevent Retinopathy of prematurity, it is imperative that babies who are born prematurely, especially at the gestation age of 30 weeks and with weight ranging between 1250 - 1500g and less, should be appropriately screened for the traces of ROP. It is important that public and pediatricians remain vigilant about this condition in the preterm babies and ensure their timely medical check-up to look out for any symptoms that hint the presence of ROP.

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