

Retinopathy of Prematurity: Senario in Developing Part of India (Bihar)

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Abstract: Retinopathy of Prematurity (ROP) is a vasoproliferative disorder which affects the developing peripheral retina of preterm infants. Recently with the invent of newer technologies to treat infertility, incidence of preterm babies has increased significantly. In smaller cities also such babies are surviving to develop ROP. Timely screening and treatment is mandatory to prevent blindness in such babies. At the same time creating awareness among parents and pediatrician is also important.

Keywords: Retinopathy of prematurity, lasers in ROP, Avastin in ROP

1. Introduction

Retinopathy of Prematurity (ROP) is a fibrovascular proliferative disorder, which affects the developing peripheral retinal vasculature of premature infants (1)

The initial signs of ROP are detectable by 3-4 weeks after birth, and the condition progresses rapidly thereafter. So the screening should be done timely, and there is only a very narrow window of opportunity for treating. If not treated, the condition progresses rapidly to Stage 4 or 5 in approximately 50% of babies. The visual prognosis for babies with Stage 5 disease (total retinal detachment) is very poor (2). The primary goal of screening is to detect all babies with treatable disease before development of retinal detachment.

2. Objectives

Incidence of ROP is increasing rapidly with improving neonatal health care in developing world and especially India. It is becoming a major health issue in Bihar. We started ROP screening and treatment program and analyzed our data to study the gravity of situation in Bihar.

3. Methods

The study was done in district Patna of Bihar (India) from 2013 to 2015. NICUs were identified and babies were screened bedside and after discharge from NICU, they were referred to base hospital for screening and treatment. Other patients coming for opinion about ROP were also included in the study.

Screening criteria

All babies having GA \leq 35 weeks or having birth weight \leq 2000 gm were screened for ROP. Apart from this, babies that fall outside the screening guidelines but had a rough course in neonatal intensive care unit (NICU) were also screened at the pediatrician's discretion (3).

Screening method

It was done with the help of indirect ophthalmoscope, 20 D lens, wire vectis and alphonso speculum (Figure 1). Proparacaine (0.5%) drops were used for topical anesthesia and half strength eye drop Tropicamide plus (0.4% tropicamide with 2.5% phenylephrine) was used for pupillary dilatation. ROP if present was classified into stages 1 to 5, zone 1 to 3 and presence or absence of plus disease (4).

Retcam or video indirect ophthalmoscope were not available and so we could not capture images to document the findings.



Figure 1: Screening of baby for ROP

ETROP guidelines were used to classify and treat the disease (5).

Following patients fall in treatment criteria

- 1) Zone 1 any stage with plus disease or
- 2) Zone 1 stage 3 without plus disease or
- 3) Zone 2 stage 2 or 3 with plus disease.

All the babies falling under treatment criteria were treated by double frequency (532 nm wavelength) Nd:Yag laser (Nidek, Japan). All the babies were treated under topical anesthesia (Proparacaine 0.5% eyedrops) under neonatologists/ anaesthetists monitoring. Complete ablation of whole avascular retina of both eyes were done in single sitting(Figure 2). The babies in which skip areas were detected later on and disease was not regressing, retreatment was done. Before the ear of indirect laser, cryotherapy was the treatment of choice but it causes severe inflammation and high degree of myopia (6).



Figure 2: Laser treatment for ROP

Few babies with APROP with avascular macular area, rigid and nondilating pupil and media haze were injected (Figure 3) Bevacizumab (Avastin, Genentech), 0.625 mg in 0.025ml both eye simultaneously (7). Laser was done later on when plus disease reappeared.

Babies with stage 4 and stage 5 ROP were referred to higher center for pars plicata vitrectomy. But the results of vitrectomy to treat stage 4 and 5 is generally poor (8).



Figure 3: Intravitreal injection of avastin

4. Results

Total 842 babies were seen. We detected total 68 treatable ROP babies(136 eyes). Out of which, 53 babies (106 eyes) underwent laser treatment. Seven babies (14 eyes) received Avastin out which 6 were taken for laser treatment later on

while 1 baby regressed with Avastin only. Three babies who needed laser refused treatment and lost to follow up. One baby later on returned with bilateral stage 4 B and was referred for PPV to higher centre. Five babies were referred late and detected bilateral stage 5 disease.

Out 53 treated babies 4 needed retreatment for non-regressing ROP with skip areas. One baby who received Avastin and laser had reactivation after 3 months with NVE and bleeding in right eye and stage 4A in left eye.He underwent additional laser treatment in right eye and PPV in left and regressed well. Two of treated babies died later on due to various systemic illnesses.

5. Discussion

ROP is becoming a major health issue in India recently. Due to rapidly improving neonatal care, increased survival of low birth weight and very low birth waeight babies, relative lack of awareness among parents and pediatrician, incidence of ROP has increased rapidly. Due to lack of resources the NICU(ill equipped many a times), lack of trained staff for round the clock care, proper monitoring of oxygen, one to one care, have contributed to increasing incidence of disease. Screening and treatment facilities for ROP is still lacking in many parts of India due to less number of ROP trained Ophthalmologists.

All these factors have led to increased blindness due to ROP in India. In Bihar also we are facing same situation.

About 2 years back we started our ROP screening program. We found incidence of treatable ROP to be 68/842 (8.07%). Smallest baby screened and detected treatable ROP was of 650 gm and largest baby with 1800 gm . All the treated babies except one did well and regressed completely. Only 1 out of 60 (1.67%) treated baby developed stage 4 ROP and undergone vitrectomy. We saw 5 babies with bilateral stage 5 disease who were referred late and developed detachment. We don't have a Retcam or video indirect Ophthalmoscope and so we could not photo document our findings. Probably due to this we could not convince 3 parents about the seriousness of disease and they refused treatment.

6. Conclusions

ROP is becoming a major health issue in India. But proper screening on time and treatment will prevent vision loss and prognosis is very good even in very small babies. We need to create awareness among neonatologists and parents for timely screening and detection of every treatable ROP. At same time we need many more ROP trained Ophthalmologists to cater the need of increasing number of babies at risk.

Availability of Retcam or Video indirect and better documenting system will increase the compliance of parents.

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Legends to Figures:

Figure 1: Screening of baby for ROP

Figure 2: Laser treatment for ROP

Figure 3: Intravitreal injection of avastin