



Structural and functional outcome in premature babies with Retinopathy of Prematurity at 6 months follow up.

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ABSTRACT

AIM: To assess structural and functional outcomes in babies with Retinopathy of prematurity at 6 months follow up. Babies received laser photocoagulation when required.

METHOD: 39 eyes of 20 babies with ROP, 7 eyes treated, were recalled for assessment at 6 months. All underwent visual acuity by Teller acuity cards, cycloplegic retinoscopy and fundus examination by Indirect ophthalmoscopy.

RESULTS: Refractive error of +7D of hypermetropia and visual acuity < 6/60 observed in a baby with stage 3, zone 2, post laser treatment.

CONCLUSION: At 6 months follow up, 94.87 % of eyes showed favourable outcome for structural and functional assessment.

KEYWORDS :

Introduction

Retinopathy of prematurity (ROP) is a potentially blinding condition of premature babies. The sequelae of retinopathy of prematurity (ROP) is an important cause of infant blindness and visual disability in the world¹.

Laser photocoagulation has replaced cryotherapy for retinal ablation of active ROP. Laser photocoagulation is reported to be less traumatic with better structural and functional outcomes compared with eyes treated with cryotherapy in threshold ROP^{1,2}. Moreover, the study of the Early Treatment for ROP Cooperative Group (ETROP) revealed, earlier treatment improved grating visual acuity and retinal structural outcomes for subthreshold ROP, at the age of 9 months as compared with conventional threshold ROP treatment³.

The final outcomes of premature infants with regressed ROP is attributed to both structural and functional outcomes. Myopia, strabismus, anisometropia, astigmatism, and amblyopia are common problems in eyes with regressed ROP. Therefore, the importance of long-term follow-up of these children is not overemphasized¹.

The purpose of this study is to present our experience about the visual outcomes of premature infants with ROP during a 6 months follow-up. In this study, we highlight the visual status and structural outcomes in these patients.

Materials and methods

From January 2012 to May 2014, premature infants who weighed less than 2000g of birth body weight or were less than 34 weeks of gestational age were screened for ROP in the Level III NICU at 3rd week for babies less than 1000 gm and at fourth week above 1000 gms using Ret Cam.

Follow-up retinal examination was performed every 1–2 weeks until ROP regression, complete vasculogenesis of retina.

Visual acuity assessment was done using Tellers acuity cards at the mean age of 6 months. Cycloplegic refraction of the eyes was determined with manual retinoscopy after instillation of tropicamide and

phenylephrine eye drops twice at a 15 min interval. Indirect ophthalmoscopy was performed to detect any structural sequelae, including straightening of arcade vessels, macular distortion or dragging, macular fold, or tractional retinal detachment.

Results:

Of the 39 eyes, none had any evidence of macular ectopia or disc dragging. Overall, 39 eyes (100%) had a favourable structural outcome. None of the eyes with spontaneous regression of ROP showed any evidence of long term sequelae.

Functional outcome: Visual acuity of the eyes were assessed using Tellers Acuity card at 6 months, details showing in Table I. Refractive error was assessed by cycloplegic refraction at 6 months details are shown in Table II.

VA-> Stage ROP	6/6-6/18 20/24-20/63	6/18-6/60 20/63-20/190	<6/60 <20/190
Stage I	8	8	0
Stage II	2	11	0
Stage III	2	6	2
Stage IV	0	0	0
Percentage	30.76%	64.10%	5.14%

Table I: shows functional outcome assessed using Tellers Acuity card at 6 months.



FIG I: visual acuity assessment being done using teller acuity card.

Refraction --> ROP stage	<+2D	+3D - +5D	+5D - +7D
Stage I	12	2	0
Stage II	10	8	0
Stage III	0	5	2
Stage IV	0	0	0
Percentage	56.41%	38.46%	5.13%

Table II: Cycloplegic refraction of the eyes determined with manual retinoscopy

Discussion

In our study, at 6 months follow up, more than 39 eyes (100 %) of eyes showed favourable structural outcome.

Ton Y et al in 2004, in their observational study in 390 premature infants without ROP found that at 6 months the incidence of refractive error was 89% , hyperopic in 76.8%, myopic in 11.9%. The mean refractive error was +2.50D at 4-6months⁸.

Verma et al.¹³ in 1994, determined the refractive status of 50 preterm neonates at birth and at the age of 6 months and 1 year using cycloplegic refraction. The refractive error however was not quantified by the examiner. Their results showed that at 1 year, hyperopia was found in 20 % of the examined eyes while myopia was present in 16 %. Myopia was seen exclusively among infants with birth weight of 2000 g or less.

Holmstorm et al ⁶ in 2005, in their study conducted Retinoscopies at 6 months, 2.5 years, and 10 years of age show a similar course of spherical equivalent refractive development regardless of the stage of ROP. Retinoscopy at age 6 months is unpredictable. Retinoscopy at age 2.5 years, however, seems to be much more reliable for predicting clinically significant refractive errors and the need for glasses later.

Limitations:

This is a Short term study

Needs further long term follow-up to evaluate for the possible change in Refractive errors

Conclusion

At 6 months follow up 94.87 % of eyes showed favourable structure and function.

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