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Choroidal Thickness with Swept-Source Optical Coherence Tomography versus Foveal Morphology in Young Children with a History of Prematurity.

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Abstract

AIM:

Comparison of choroidal thickness (CT) and foveal morphology as seen with swept-source optical coherence tomography (SS-OCT) in children with a history of treated or spontaneously regressed retinopathy of prematurity (tROP or srROP) to assess the impact on best-corrected visual acuity (BCVA).

METHODS:

CT was measured by SS-OCT (DRI-OCT Triton; Topcon, USA) single scans of a 6-mm diameter around the fovea in 17 children with tROP or srROP (4-7 years of age) and compared to 25 controls (age-matched children and adults). The disproportion of the outer nuclear layer and inner retinal layers at the fovea (i.e., the ONL+/IRL ratio) as a measure of macular developmental arrest (MDA) was manually analyzed. BCVA was tested with ETDRS letter charts and correlated with the morphology.

RESULTS:

CT was significantly thinner in children with tROP and srROP compared to term-born healthy children (nKids) at all measurement marks ($p < 0.001$), and mostly affected in the subfoveal area. tROP showed the lowest CT. CT allowed no direct conclusion about ONL+/IRL, but correlated positively with BCVA.

CONCLUSIONS:

Reduced CT in children with a history of ROP is linked to ROP severity. These findings overlap with the degree of MDA. CT appears to be involved in ROP, but MDA showed a higher impact on the BCVA of the examined cohort.

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FLUORESCEIN ANGIOGRAPHIC EVALUATION OF PERIPHERAL RETINAL VASCULATURE AFTER PRIMARY INTRAVITREAL RANIBIZUMAB FOR RETINOPATHY OF PREMATURITY.

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Author information

Abstract

PURPOSE:

To evaluate angiographic findings in neonates up to 150 weeks postmenstrual age who received intravitreal ranibizumab for primary treatment of Type 1 retinopathy of prematurity.

METHODS:

Retrospective evaluation of fluorescein angiogram findings was completed for 30 eyes of 16 neonates who received intravitreal ranibizumab as primary treatment for Type 1 retinopathy of prematurity between April 2013 and January 2015. Outcome measures included maturity to Zone III, vascular blunting, vascular loops, vascular dilatation, capillary dropout, and vascular fluorescein leakage.

RESULTS:

Mean gestational age was 24 weeks and mean postmenstrual age at time of intravitreal ranibizumab treatment was 35 weeks. Fluorescein angiograms performed at 44 weeks to 150 weeks postmenstrual age showed only 50% of eyes reached vascularization to Zone III; 40% had persistent vascular leakage; and ≥90% exhibited vascular blunting, vascular dilatation, and/or capillary dropout.

CONCLUSION:

Although intravitreal ranibizumab is effective in initial cessation of Type 1 retinopathy of prematurity, vascularization to Zone III was only achieved in 50% of eyes in our series and most eyes had fluorescein angiography evidence of vascular anomalies. If future studies are performed comparing treatment with laser photocoagulation to anti-vascular endothelial growth factor, fluorescein angiographic studies should be considered to assess the status of the peripheral retinal vasculature to determine treatment effect.

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Glaucoma after Lens-Sparing Vitrectomy for Advanced Retinopathy of Prematurity.

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Author information

Abstract

PURPOSE:

To report the incidence of, and factors related to, glaucoma after lens-sparing vitrectomy (LSV) surgery in advanced retinopathy of prematurity (ROP).

DESIGN:

Retrospective case series at a single tertiary referral pediatric vitreoretinal practice.

PARTICIPANTS:

Four hundred and one eyes from 270 patients were included.

METHODS:

The medical records of patients who underwent LSV for stage 4A, 4B, and 5 ROP were retrospectively reviewed. Data were collected from patient charts including gender, gestational age at birth, birthweight, stage of ROP at presentation, prior treatment (laser or cryotherapy), subsequent retinal surgeries, presence of glaucoma, time to glaucoma (interval between LSV and the onset of glaucoma), date of lensectomy (if performed), and retinal attachment status at last visit. Lensectomy was considered as a time-dependent covariate in the analysis.

MAIN OUTCOME MEASURES:

Incidence of glaucoma and potential risk factors for time to glaucoma.

RESULTS:

Among 401 eyes with advanced ROP, 40 eyes (10.0%) had glaucoma during a mean of 3.06±4.11 years of follow-up. The incidence of glaucoma was 6.9% (17/247) in stage 4A, 12.0% (16/133) in stage 4B, and 33.3% (7/21) in stage 5 ROP. Twenty-one percent of eyes (87/401) required lensectomy at a mean of 1.23±2.19 years after LSV. In univariate analysis, having stage 5 ROP (vs. stage 4 ROP) and presence of lensectomy were found to be significantly associated with time to glaucoma (hazard ratio = 6.76, 95% confidence interval = 2.19-20.88, P = 0.001; hazard ratio = 3.06, 95% confidence interval = 1.56-6.0, P = 0.001, respectively). In multivariate analysis, lensectomy was the only significant independent factor associated with time to glaucoma (hazard ratio = 2.76, 95% confidence interval = 1.371-5.581, P = 0.004).

CONCLUSIONS:

Patients with more severe ROP had a higher incidence of glaucoma after lens-sparing vitrectomy. If a patient required lensectomy owing to progression of ROP and/or presence of lens opacity, then the hazard of having glaucoma significantly increased compared with those without lensectomy.

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Medical and developmental outcomes of bevacizumab versus laser for retinopathy of prematurity.

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Author information

Abstract

BACKGROUND:

Infants with stage 3+ retinopathy of prematurity (ROP) in zone I or zone II posterior were randomized to initial treatment with bevacizumab or laser in a multicenter trial (BEAT-ROP). The purpose of this study was to assess the effects of bevacizumab on nonophthalmologic outcomes.

METHODS:

At one study site, inborn infants of <27 weeks' gestational age underwent medical and standardized neurologic and developmental assessments at 18-22 months' corrected age (age after expected date of full-term delivery).

RESULTS:

Of the 18 infants enrolled at our site, 16 (7 bevacizumab, 9 laser) were evaluated for medical and neurodevelopmental outcomes at 18-28 months' corrected age. For each of the groups, the medians and ranges of growth percentiles were low compared with norms for healthy infants. The ranges for Bayley III developmental scores were also low relative to expected norms for healthy infants. There were no significant differences between the bevacizumab and laser therapy groups in weight (median percentile: bevacizumab, 18; laser, 7), length, head circumference, cerebral palsy, or Bayley scores (median Cognitive Composite Score: bevacizumab, 85; laser, 65). There was a significant difference in length of hospital stay (median days, 98 vs 140 days) favoring the bevacizumab group.

CONCLUSIONS:

In this patient cohort 2-year follow-up evaluation of infants treated with bevacizumab versus laser therapy for retinopathy of prematurity showed no adverse effects on medical or neurodevelopmental outcomes.