Abstracts

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Surgical Management of Rhegmatogenous Retinal Detachment: A Meta-Analysis of Randomized Controlled Trials

Soni C, Hainsworth DP, Almony A
Ophthalmology 2013; 120: 1440-7.

Chetan et al did this Meta-analysis study to examine possible differences in clinical outcomes between pars plana vitrectomy (PPV) and scleral buckling (SB) for uncomplicated rhegmatogenous retinal detachment (RRD). Adult patients with uncomplicated RRD from previously reported randomized controlled trials of PPV and SB were included in this meta analysis using a comprehensive literature search using the Cochrane Collaboration methodology to identify randomized controlled trials comparing PPV with SB for uncomplicated RRD.

Analysis was divided into phakic and pseudophakic/aphakic patients. Primary outcome parameters included proportion of primary reattachment and difference of means of best-corrected visual acuity (BCVA) at 6 months or more between the PPV and SB groups. Secondary outcome parameters included the proportion of secondary reattachment and complications between the PPV and SB groups. Seven studies were identified and analyzed for comparing PPV (636 eyes) with SB (670 eyes) for uncomplicated RRD. In the phakic group, there were no significant differences in the proportion of primary reattachments (odds ratio [OR], 1.00; 95% confidence interval [CI], 0.69–1.46) or secondary reattachments (OR, 0.99; 95% CI, 0.34–2.87) between the PPV and SB groups. Meta-analysis showed a statistically significant difference in the logarithm of the minimum angle of resolution (logMAR) BCVA at 6 months between the PPV-treated and SB-treated phakic eyes (mean deviation, 0.14; 95% CI, 0.06–0.21; P-0.0004). In the pseudophakic/aphakic group, there were no significant differences in the proportion of primary reattachments (OR, 1.46; 95% CI, 0.79–2.71) or logMAR BCVA at 6 months between the PPV and SB groups (mean deviation, -0.03; 95% CI, -0.10 to 0.04). A statistically significant difference was noted in the proportion of secondary reattachments (OR, 2.08; 95% CI, 1.08-4.03; P - 0.03) between the PPV and SB groups in pseudophakic/aphakic eyes. Meta-analysis showed a statistically significant rate of cataract progression in the PPV group (OR, 4.11; 95% CI, 2.70–6.25; P-0.00001). The authors concluded that there were no significant differences in the proportions of primary reattachment in the PPV and SB groups in phakic eyes. The SB-treated phakic eyes had better postoperative BCVA at 6 months or more. This was most likely related to higher rates of cataract progression in PPV-treated phakic eyes. There were no significant differences in proportions of primary reattachment and postoperative BCVA at 6 months or more in pseudophakic/aphakic eyes.

Corneal Collagen Cross-linking with Riboflavin and Ultraviolet A Irradiation for Keratoconus

Hashemi H, Mohammad Amin Seyedian MA, Miraftab M, Fotouhi A, Asgari S
Ophthalmology 2013;-120:-1515–20.

Hassan et al evaluated the long-term results of corneal collagen cross-linking (CXL) in patients with progressive keratoconus in this prospective case series. This study was conducted on 40 eyes of 32 patient with progressive keratoconus between 2006 and 2012. Patients underwent CXL no later than 1 month after baseline examinations. For CXL, ultraviolet irradiation was applied for 30 minutes, during which riboflavin instillation was repeated every 3 minutes.

Patients were tested for best-corrected visual acuity (BCVA), uncorrected visual acuity (UCVA), manifest refraction spherical equivalent (MRSE), and Scheimpflug imaging from which they extracted maximum keratometry reading (max-K), average of minimum and maximum keratometry readings (mean-K), central corneal thickness (CCT), and anterior and posterior elevation at the apex at baseline, at 1, 3, 6 months after CXL, and 1, 2, 4, and 5 years later. They studied results at 5 years after CXL as well as the trend of changes over the 5-year period. The results showed that mean UCVA was 0.67-0.52 logarithm of the minimum angle of resolution (logMAR) at baseline and 0.65-0.51 logMAR at 5 years after the procedure. For mean BCVA, these values were 0.31-0.28 and 0.19-0.20 logMAR, respectively (P-0.016). The mean MRSE changed from -3.18 -2.23 diopters (D) to -2.77 -2.18 D, and mean refractive cylinder error changed from -3.14 -2.22 to -2.49 -1.71 D

(P -0.089). Mean max-K and mean-K decreased by 0.16-2.20 and 0.10-1.69 D, respectively. The CCT increased from 483.87 -29.07 to 485.95 -28.43 -m. Mean anterior elevation at the apex changed from 13.9 2 -8.28 to 11.45 -8.18 -m (P -0.030) and posterior elevation at this point changed from 29.54 -18.39 to 26.34 -19.59 -m. The mean-K, max-K, UCVA, and astigmatism showed no change over time during these 5 years. After the first year, BCVA, MRSE, and CCT showed no change and stabilized, whereas elevation readings continued to decrease up to 5 years after CXL. The authors concluded based on 5-year results that treatment of progressive keratoconus with CXL can stop disease progression, without raising any concern for safety, and can eliminate the need for keratoplasty.

Incidence of Canalicular Closure with Endonasal Dacryocystorhinostomy without Intubation in Primary Nasolacrimal Duct Obstruction

Cannon PS, Chan WO, Selva D
Ophthalmology 2013; 120: 1688-92.

Paul et al describe the incidence of canalicular closure with powered endonasal dacryocystorhinostomy (DCR) without canalicular intubation in primary acquired nasolacrimal duct obstruction (PANDO) in this single-surgeon, prospective, nonrandomized, noncomparative, interventional case series. The participants were consecutive patients attending a specialist clinic of an oculoplastic surgeon (DS) with radiologically confirmed diagnosis of PANDO. Cases of canalicular disease were excluded. All patients with radiologically confirmed PANDO without canalicular involvement underwent endonasal DCR without intubation. The operation was performed by 1 surgeon (DS) and follow-up was at 4 weeks and 12 months. Outcomes were recorded as subjective symptomatic relief at 12 months and endoscopic evidence of ostium patency and canalicular patency. There were 132 cases that fulfilled the inclusion criteria. Three cases were lost to follow-up. Preoperatively, 96.3% of cases had Munk scores of >2. Of the 129 cases, 127 (98.5%) had endoscopic evidence of a patent ostium with a positive endoscopic dye test at the 12-month follow-up. All cases had a patent canalicular system as demonstrated by syringing and probing. Of the 129 cases, 117 (90.7%) had subjective improvement of epiphora at 12 months with 88.4% of cases reporting Munk scores of -1. The authors concluded in this prospective series of non intubation for PANDO, there were no cases of canalicular closure or stenosis at 12 months. Anatomic and functional success was similar to reported outcomes for DCR with intubation for PANDO. The also advocated that routine intubation for the purpose of maintaining canalicular patency is not necessary when performing endonasal DCR in PANDO.

Detection of Glaucomatous Progression by Spectral-Domain Optical Coherence Tomography

Na JH, Sung KR, Lee JR, Lee KS, Baek S, Kim HK, Sohn YH
Ophthalmology 2013; 120: 1388-95.

The authors compared the rate of change of circumpapillary retinal nerve fiber layer (cRNFL) thickness, macular volume and thickness, and optic nerve head (ONH) parameters assessed using spectral-domain optical coherence tomography (SD-OCT) between eyes with progressing and nonprogressing glaucoma in this longitudinal, observational study. Two hundred seventy-nine eyes from 162 glaucoma patients followed for an average of 2.2 years. Eyes were classified as progressors and nonprogressors according to assessment of optic disc and RNFL photographs and visual field progression analysis. Linear mixed effects models were used to evaluate the overall rate of change of cRNFL thickness, macular volume and thickness, and ONH parameters after adjustment for age, spherical equivalent, signal strength, and baseline SD-OCT measurements. The main outcome measures were the rate of change of cRNFL thickness, macular volume, and thickness and ONH parameters. Sixty-three eyes (22.6%) from 52 subjects were identified as progressors. Average, inferior quadrant, and 6- and 7-o'clock sector cRNFL thickness decreased faster in progressors than in nonprogressors (-1.26 vs -0.94, -2.47 vs -1.75, -3.60 vs -2.52, and -2.77 vs -1.51 -m/year, respectively; all P-0.05). The ONH rim area decreased faster, and average and vertical cup-to-disc ratio increased faster in progressors than in nonprogressors (-0.016 vs -0.006 mm2/year, and 0.004 vs 0.002 and 0.006 vs 0.004 per year, respectively; all P-0.05). Macular cube volume and the thickness of temporal outer and inferior inner macular sectors decreased faster in progressors than in nonprogressors (-0.068 vs -0.048 mm3/year, and -2.27 vs -1.67 and -2.51 vs -1.73 -m/year, respectively; all P-0.05). The authors concluded that serial measurement of parameters in all 3 areas (cRNFL, macula, and ONH) by SD-OCT may permit identification of progression in glaucomatous eyes.