Study finds buckle is better for phakic patients, while vitrectomy is better for pseudophakes

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The results of the SPR study (scleral buckling versus primary vitrectomy in rhegmatogenous retinal detachment study) indicate that scleral buckling surgery provides the best results in phakic retinal detachment patients while pseudophakic retinal detachment patients do best with vitrectomy and scleral buckle combined, according to Heinrich Heimann MD.

The SPR Study is the first prospective randomised clinical trial to compare scleral buckling and primary vitrectomy in patients with rhegmatogenous retinal detachment. Some 49 surgeons from 27 institutions in six European countries participated in the study, said Dr Heimann, St Paul’s Eye Unit, Royal Liverpool University Hospital, Liverpool, UK.

Dr Heimann noted that for patients with more complex rhegmatogenous retinal detachments, the most appropriate operating method is controversial, and there is a large variation in choice of technique between surgeons. Recent years have seen an increasing trend towards the use of primary vitrectomy, which is becoming more successful as the techniques and technology for the procedure evolve, he said.

“The debate between scleral buckling surgery and primary vitrectomy has been going on for a long time now. There have been several studies published, but until now, no study has shown an advantage of SB or PV in phakic or pseudophakic patients,” he added.

The SPR study involved 266 pseudophakic and 416 phakic patients who were randomised to undergo either scleral buckling surgery or primary vitrectomy with or without scleral buckling. The inclusion criteria for the study were complex primary rhegmatogenous detachment and cases where treatment with a single meridional 7.5mm episcleral sponge was not possible.

The study’s pre- and postoperative assessments included ETDRS visual acuity, nine-field photodocumentation, LOCS III examination of lens opacity and review by the endpoint committee. The primary endpoint of the trial was improved visual acuity.

Secondary endpoints of the study were the final success rate, the rate of retinal reattachment without additional retinal surgery, including photocoagulation and macular pucker surgery, the number of retina-related secondary surgeries, and the development of PVR. In phakic patients, cataract development was also analysed.

For pseudophakic patients

At a follow-up of one year, phakic patients who underwent scleral buckling achieved significantly greater improvements in final visual acuity than those who underwent primary vitrectomy (p=0.0005), Dr Heimann noted.

“There have been several studies published, but until now, no study has shown an advantage of SB or PV in phakic or pseudophakic patients.”

That is, in the 209 phakic patients in the scleral buckling group, mean visual acuity improved from 20/200 preoperatively to a final value of 20/40, a gain of seven lines, compared to an improvement from 20/200 to 20/63 in the primary vitrectomy group, a gain of only six lines.

“We achieved better results with scleral buckling in this complicated group of patients. Of course the argument is that it is because of cataract development in vitrectomised eyes, but most had cataract removed during follow-up, otherwise excluded from the analysis of the functional results,” he added.

As regards secondary endpoints, the only significant differences between the two treatment groups of phakic patients were in the rate of cataract progression and the rate of IOL implantation. Among primary vitrectomy patients, cataract progression occurred in 77.3 per cent and cataract surgery was carried out in 58.0 per cent, compared to cataract progression and surgery rates of 45.9 per cent and 20.6 per cent, respectively, in the scleral buckling group.

Otherwise, the two groups of phakic patients were virtually the same in terms of their secondary endpoints. In the scleral buckling group and primary vitrectomy groups the respective rates of redetachment were 26.3 per cent and 26.6 per cent, those of primary success were 63.6 per cent and 61.8 per cent, and those of final success were 95.7 per cent and 94.7 per cent. However, the rate of PVR was slightly higher in the primary vitrectomy group (16.4 per cent) than it was in the scleral buckling group (12.4 per cent).

In the 50.7 per cent of phakic patients in the primary vitrectomy group who also underwent scleral buckling surgery, the rate of retinal redetachment was 29.5 per cent and the rate of PVR was 21.9 per cent. In the patients who did not undergo the additional procedure, the redetachment rate was slightly lower at 20.6 per cent and the rate of PVR was considerably lower at 10.8 per cent.

For pseudophakic patients

In pseudophakic patients there was no significant difference between the groups in terms of functional outcome. Both groups gained six lines of visual acuity with vision improving from 20/200 to 20/63 in the scleral buckling group and from 20/200 to 20/50 in the primary vitrectomy group.

However, regarding the secondary endpoints, the primary success rate was significantly higher in the primary vitrectomy group at 72.0 per cent, compared to 53.4 per cent in the scleral buckling group. Moreover, the rate of retinal redetachment was 39.0 per cent in the scleral buckling group, compared to 20.4 per cent in the primary vitrectomy group.

“Buckle better for phakic patients”

Vitrectomy best for pseudophakes

In pseudophakic patients the recommendations from the study would be for primary vitrectomy, although there was no difference in VA, but there are anatomical differences and when combined with scleral buckle there is a lower rate of redetachment, a lower rate of retinal reoperations lower rate of PVR,” he added.

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