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Clinical variables associated with failure of retinal detachment repair: the European vitreo-retinal society retinal detachment study report number 4

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Abstract

Objective: To identify risk factors associated with failure of anatomic reattachment in primary rhegmatogenous retinal detachment repair.

Design: Nonrandomized, multicenter, collaborative study.

Participants: Primary procedures for 7678 rhegmatogenous retinal detachments reported by 176 surgeons from 48 countries.

Methods: We recorded specific preoperative clinical findings, repair method, and outcome after intervention. We performed univariate, bivariate, and multivariate analyses to identify variables associated with surgical failure.

Main outcome measures: Final failure of retinal detachment repair (level 1), remaining silicone oil at study conclusion (level 2), and need for additional procedures to repair the detachment (level 3).

Results: We analyzed 7678 cases of rhegmatogenous retinal detachment repair. Presence of choroidal detachment or significant hypotony was associated with significantly higher level 1 failure rates when grade 0 or B proliferative vitreoretinopathy (PVR) was present and higher level 2 failure rates, regardless of PVR status ($P < 0.05$). Excluding cases with choroidal detachment or hypotony, increasing PVR was associated with increasing level 1 failure rates. The difference between grade B and C-1 PVR was significant ($P = 2 \times 10^{-6}$). No difference was observed in level 1 failure rates when operated eyes were phakic versus pseudophakic. Level 1 failure was significantly higher when all 4 quadrants of retina (4.4%) were detached than when only 1 quadrant (0.8%) had subretinal fluid. With grade B or C-1 PVR, cases with large or giant tears had significantly higher level 1 failure rates. No association was observed between number of retinal breaks and failure rates. Multivariate analysis showed grade C-1 PVR, 4 detached quadrants, and presence of choroidal detachment or significant hypotony were independently linked with a greater level 1 failure rate; the presence of a smaller retinal break was associated with a lesser level 1 failure rate.

Conclusions: Choroidal detachment, significant hypotony, grade C-1 PVR, 4 detached quadrants, and large or giant retinal breaks were independent explanatory variables of retinal detachment repair failure. In contrast to earlier studies, the significance of phakic versus pseudophakic status was not confirmed.