

Post-operative patient positioning regimens in adults who undergo retinal detachment repair: a systematic review

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PURPOSE / OBJECTIVES

- Rhegmatogenous retinal detachment (RRD) is a significant cause of vision-loss
- Requires surgical repair, either with scleral buckle (SB), pneumatic retinopexy (PnR), or pars plana vitrectomy (PPV)
- Following surgery, patients often advised to adopt specific postoperative posturing regimen
- The literature is varied on the comparative efficacy and complications of postoperative positions

MATERIAL & METHODS

- Included studies were RCTs or observational studies
- Compared at least two post-operative posturing regimens following RRD surgery
- The primary outcome was visual acuity; secondary outcomes were retinal reattachment/complication rates.

Records identified through database searching (OVID MEDLINE and EMBASE, 2000 to February 2022) (n=6,119)

Additional records identified through registry (Cochrane Library, 2000 to February 2022) (n= 364)

Records screened for title and abstract (n=6,483)

Records excluded (6,453)

Full-text articles assessed for eligibility (n=30)

Full-text articles excluded (n=22)
 14 Not evaluating role of post-operative posturing after RRD surgery
 3 Not an RCT or cohort study
 3 Not comparing different post-operative postures
 1 Patients did not have RRD
 1 Conference abstract

Studies included in qualitative synthesis (n=8)

RESULTS

Final Visual Acuity and Retinal Reattachment Rate Across Studies

Study	Design	Surgery	Posture	Final BCVA (Mean logMAR ± SD)	P Value	Primary Reattachment Rate (%)	P Value
Casswell et al.	RCT	PPV	Prone	Corrected ETDRS, median (IQR) 74 (65, 79)	Not reported	90.8	Not reported
			Support-the-break	Corrected ETDRS, median (IQR) 75 (65, 80)		91.6	
Chen et al.	Prospective	PPV	Prone	0.74 ± 0.25 (Snellen 20/109)	0.41	89.7	1.00
			Adjustable	0.77 ± 0.36 (Snellen 20/117)		92.3	
Otsuka et al.	Prospective	PPV	Prone	-0.03 ± 0.09 (Snellen 20/18)	Not reported	93.8	1.00
			Supine	0.02 ± 0.20 (Snellen 20/21)		93.3	
Peiretti et al.	RCT	PPV	Prone without PFCL	0.22 ± 0.11 (Snellen 20/33)	Not reported	Not reported	N/A
			Prone with PFCL	0.29 ± 0.09 (Snellen 20/39)			
			Supine without PFCL	0.28 ± 0.12 (Snellen 20/38)		Not reported	
			Supine with PFCL	0.30 ± 0.12 (Snellen 20/40)			
Shiraki et al.	Retrospective	PPV	Prone	0.14 ± 0.31 (Snellen 20/28)	0.58	83.1	0.011*
			No prone	0.16 ± 0.41 (Snellen 20/29)		96.1	
Schawka et al.	RCT	PPV	Log roll	Not reported	N/A	Not reported	N/A
			Supine	Not reported		Not reported	
Shiragami et al.	Prospective	PPV	Delayed prone	Not reported	N/A	Not reported	N/A
			Immediate prone	Not reported		Not reported	
Yanyali et al.	RCT	PnR	Position to break	0.64 ± 0.42	0.152	74	0.629
			Steamroller	0.46 ± 0.35		67	

BCVA= best corrected visual acuity; SD= standard deviation; RCT=randomized controlled trial; PPV= pars plana vitrectomy; PnR= pneumatic retinopexy ; ETDRS= Early Treatment Diabetic Retinopathy Study; IQR= interquartile range

RESULTS

Example Complications or Significant Complications Across Posturing Regimens

Study	Posture	Complications (%)	P-value
Casswell et al.	Prone vs. support-the-break	Elevated intraocular pressure (IOP) (30.5 vs. 17.6)	0.02*
		Transient neck pain (35.1 vs. 13.7)	<0.005*
		Binocular diplopia (1.5 vs. 7.6)	0.03*
		Retinal folds (5.3 vs. 13.7)	0.03*
Chen et al.	Prone vs. adjustable	Retinal displacement at 6 months (42 vs. 56.3)	0.04*
		Cataract progression (37.5 vs. 41.7)	0.96
Otsuka et al.	Prone vs. supine	Posterior synechia (3.1 vs. 6.7)	0.61
Peiretti et al.	Prone with/without PFCL vs. Supine with/without PFCL	Ellipsoid zone loss 1 month (28 vs. 28 vs. 28 vs. 28)	Not reported
Shiraki et al.	Prone vs. no prone	Epi-retinal membrane formation (3.1 vs. 13)	0.039*
		Fibrin formation in anterior chamber (26.2 vs. 13)	0.046*
Schawka et al.	Log roll vs. supine	Retinal displacement (46.2 vs. 20.8)	0.94
Shiragami et al.	Delayed vs. immediate prone	Retinal displacement (63.6 vs. 23.8)	<0.001*
Yanyali et al.	Position to break vs. steamroller	Cataract (14 vs. 6)	0.586

DISCUSSION/ CONCLUSION

- No differences in final BCVA between positioning regimens
- Non-prone positioning had better reattachment rates in eyes with inferior breaks
- Non-prone position had higher risk of epiretinal membrane and lower risk of fibrin formation when compared with prone positioning
- Support-the-break had a higher risk of diplopia, while prone had more neck pain, highlighting issues of comfort with this position
- Adopting prone positioning immediately after surgery may lower the risk of retinal displacement
- More well-designed trials are needed to evaluate impact of postoperative positioning on clinical outcomes in RRD