Retina Roundup

August 2022

1) Ophthalmology Retina 2022 Jun 30;S2468-6530(22)00322-0.
doi: 10.1016/j.oret.2022.06.015

ROLE OF POSITIONING AFTER FULL-THICKNESS MACULAR HOLE SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Topic: The importance of post-operative face down positioning (FDP) to achieve anatomic and functional success after full thickness macular hole (FTMH) surgery is explored in this meta-analysis of randomized controlled trials (RCTs).

Clinical Relevance : There is considerable variability in clinical practices regarding the need and length of FDP recommended to patients after FTMH surgery. There is also a lack of robust clinical guidelines on the topic. As such, an updated estimate of the effect size of FDP on clinically important outcomes is critical to inform practice

Methods: Ovid MEDLINE, EMBASE, CENTRAL and SCOPUS databases were searched from inception to October 3, 2021, for RCTs evaluating FDP versus non-FDP (nFDP). Data was collected for 7 clinically important outcomes after macular hole surgery: closure rate, visual acuity improvement, recurrence of FTMH, visual function, quality of life, patient satisfaction, complication rates. We used The Cochrane risk-of-bias tool for randomized trials (RoB 2) to assess risk of bias and followed the GRADE approach to assess the certainty in the evidence across outcomes. We conducted meta-analyses using random effects modelling. Subgroup analyses were carried out based on hole size, type of gas, and duration of FDP.

Results: 8 RCTs of 709 eyes were included. The relative risk (RR) of FTMH closure rate comparing FDP versus nFDP was RR 1.05 (95% CI 0.99, 1.12, P=0.09, I^2 = 44%, GRADE rating: LOW). The Mean Difference (MD) regarding visual acuity improvement comparing FDP and nFDP was MD -0.07 (95% CI -0.12, -0.01, P=0.03, I^2 = 16%, GRADE rating: LOW).

Conclusions: The current review did not demonstrate a difference between FDP and nFDP with respect to FTMH closure, although the confidence intervals were wide. There was a visual benefit to FDP, however, the confidence intervals included values of trivial clinical significance. Sub-group analyses demonstrated that the VA benefit observed was driven by large holes. Limited data precluded analysis regarding the rate of FTMH recurrence, measures of visual function, quality of life measures and patient satisfaction metrics. Further prospective trials are required to assess the gaps in the literature and improve the certainty of evidence for the outcomes examined.

PMID : 35781067

DOI : https://doi.org/10.1016/j.oret.2022.06.015

Link : https://pubmed.ncbi.nlm.nih.gov/35781067/

2) International Journal of Retina and Vitreous 2022 Jun 11;8(1):36.
doi: 10.1186/s40942-022-00391-3.

IN VIVO GENERATED AUTOLOGOUS PLASMIN ASSISTED VITRECTOMY IN YOUNG PATIENTS

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Background: Autologous plasmin enzyme facilitates the induction of posterior vitreous detachment(PVD) during vitrectomy in young patients. We proposed the concept of in-vivo generated plasmin which is based on the injection of tissue plasminogen activator(t-PA) and autologous whole blood(AWB) into the vitreous cavity. The purpose of this pilot study is to report the efcacy of preoperative simultaneous intravitreal injection of(t-PA) and autologous whole blood in facilitating the intraoperative induction of PVD in young patients with various vitreoretinal pathologies.

Methods: Seventeen eyes of 16 young patients with various vitreoretinal pathologies requiring vitrectomy, who received simultaneous intravitreal injection of 0.1 ml of AWB and 25 µg of t-PA, 3 days prior to surgery were retrospectively reviewed. Outcome measures were the number of attempts required to achieve successful intraoperative separation of the posterior hyaloid; the postoperative visual acuity; and intraoperative and postoperative complications.

Results: The mean age of the patients was 23.87±10.09 years, ranging from 10 to 39 years. Eight of 16 patients were men. The mean follow-up time was 19.35±5.04 months, ranging from 12 to 26 months. Surgical indications for vitrectomy were chronic retinal detachment (n=7), traumatic retinal detachment without proliferative vitreoretinopathy(n=3), traumatic macular hole(n=1), secondary vasoproliferative tumor(n=4) and optic pit maculopathy(n=2). Patients with retinal detachment complicated with PVR and those who were older than 40 years of age were excluded from the study. Separation of the Weiss ring from the optic nerve head was achieved intraoperatively in all cases, with a mean number of 2.86±1.4 attempts. While the mean preoperative LogMAR visual acuity was 1.38±0.59, ranging from 2.40 to 0.50, it was a mean of 0.51±0.29, ranging from 1.00 to 0.10 at final postoperative exam ($p<0.001$; paired samples t-test). No preoperative or intraoperative complications were noted.

Conclusions: Preoperative simultaneous intravitreal injection of 25 µg t-PA with 0.1 ml of AWB facilitates the intraoperative induction of posterior vitreous detachment in young patients.

PMID : 35690857

DOI : https://doi.org/10.1186/s40942-022-00391-3

Link : https://pubmed.ncbi.nlm.nih.gov/35690857/

3) International Journal of Retina and Vitreous 2022 Jun 11;8(1):37.
doi: 10.1186/s40942-022-00389-x.

COMBINED INTRAVITREAL INJECTION OF BEVACIZUMAB AND A ROCK INHIBITOR (FASUDIL) FOR REFRACTORY MACULAR EDEMA SECONDARY TO RETINAL VEIN OCCLUSION: A PILOT STUDY

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Background: To investigate the adjunctive effect of an intravitreal ROCK inhibitor (fasudil) in combination with intravitreal bevacizumab (IVB) on refractory macular edema secondary to retinal vein occlusion (RVO).

Methods : In this prospective interventional case series, 17 eyes of 17 patients (10 men, 7 women) with refractory RVO-related macular edema underwent three consecutive intravitreal injections of bevacizumab plus fasudil. Monthly evaluation was continued up to 12 months and IVB injection was performed if needed during the follow-up. Changes in the best corrected visual acuity (BCVA) was the primary outcome measure. The secondary outcome measures included central macular thickness (CMT) changes and any adverse events.

Results: BCVA signifcantly improved (mean change: −0.15 LogMAR; P=0.017) after 3 consecutive intravitreal injections of fasudil in combination with bevacizumab. CMT signifcantly decreased (mean change: −206 μm; P=0.028). The anatomical and functional improvement was maintained during the 12 month follow-up. No adverse effects were noticed.

Conclusions: Intravitreal ROCK inhibitors may break the resistance to anti-VEGF therapy and improve the RVO induced macular edema via affecting the VEGF-independent pathways.

PMID : 35690809

DOI : https://doi.org/10.1186/s40942-022-00389-x

Link : https://pubmed.ncbi.nlm.nih.gov/35690809/

4) BMC Ophthalmology 2022 Jul 11;22(1):299.
doi: 10.1186/s12886-022-02523-7.

CHARACTERISTICS OF MACULAR MORPHOLOGY AND MICROCIRCULATION IN DIABETIC MACULAR EDEMA PATIENTS WITH SEROUS RETINAL DETACHMENT

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Background: To analyze and compare the characteristics of macular morphology and microcirculation in diabetic macular edema (DME) patients with and without macular serous retinal detachment (SRD).

Methods: One hundred eyes in 81 patients diagnosed with the DME (the central macular thickness (CMT) of ≥300 μm) from March 2020 to November 2020 were selected. According to whether complicated with SRD, patients were divided into DME with SRD (60 eyes) and without SRD (40 eyes) groups. We analyzed the following parameters: CMT, central retinal thickness (CRT), subfoveal choroidal thickness (SFCT), number of hyperrefective foci (HF) in the complete retina, inner retina, outer retina, and subretinal space, the integrity of the ellipsoid zone (EZ) and external limiting membrane (ELM), the presence of disorganization of inner retinal layers (DRIL), foveal avascular zone (FAZ) area, and the vascular fow density of superfcial capillary plexus (SCP), deep capillary plexus (DCP), and choriocapillaris.

Results: Compared to the group without SRD, the group with SRD had a greater CMT (P0.05); 6. The presence of the SRD was correlated with the integrity of the ELM, the number of HF in the complete retina, outer retina, and subretinal space ($\chi 2$=26.930, OR=0.707, 0.263, 0.995, P<0.001), as well as the SFCT (OR=0.992, P<0.05).

Conclusion: The results support the hypothesis that the presence of the ELM disruption, the larger number of the HF, and the thickening and hyperperfusion of the choroid may be involved in the pathogenesis of SRD in DME.

PMID : 35820875

DOI : https://doi.org/10.1186/s12886-022-02523-7

Link : https://pubmed.ncbi.nlm.nih.gov/35820875/

5) BMC Ophthalmology 2022 Jun 30;22(1):289.
doi: 10.1186/s12886-022-02507-7.

EFFICACY AND SAFETY OF TRANS-SUB-TENON'S RETROBULBAR ANESTHESIA FOR PARS PLANA VITRECTOMY: A RANDOMIZED TRIAL

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Aim: To compare the efficacy and safety of trans-sub-Tenon's ciliary nerve block anesthesia and transcutaneous retrobulbar anesthesia in patients undergoing pars plana vitrectomy (PPV).

Methods: A prospective, randomized, double-blinded clinical trial was conducted at Zhongda Hospital, Affliated with Southeast University, from February 2021 to October 2021. Patients undergoing PPV were randomly allocated into two groups: the trans-sub-Tenon's anesthesia group (ST group) and the retrobulbar anesthesia group (RB group) in the ratio of 1:1. The ST group received 2 ml ropivacaine through the Tenon capsule to the retrobulbar space, while the RB group received 2 ml ropivacaine via transcutaneous retrobulbar injection. Visual analog score (VAS) was used to evaluate pain during the whole process, including during anesthesia implementation, intraoperatively and on the frst day after the operation. Movement evaluation (Brahma scores) and anesthesia-related complications were also noted.

Results: Finally, a total of 120 patients were included in the study (60 in the ST group and 60 in the RB group). There were no significant differences in baseline patient characteristics or surgical features between the two groups. The VAS pain scores for anesthesia implementation were 0.52±0.47 in the ST group and 1.83±0.87 in the RB group (P=0.087). No serious sight-threatening or life-threatening complications related to anesthesia were observed in either group.

Conclusion: For PPV, trans-sub-Tenon's ciliary nerve block anesthesia was more efective in controlling pain than transcutaneous retrobulbar anesthesia during the whole surgery process, including during anesthesia implementation, intraoperatively and on the frst day after the operation. Additionally, it could achieve better efect of akinesia and was relatively safe. Trans-sub-Tenon's anesthesia could be considered an alternative form of local anesthesia during vitreoretinal procedures.

PMID : 35773662

DOI : https://doi.org/10.1186/s12886-022-02507-7

Link : https://pubmed.ncbi.nlm.nih.gov/35773662/