Retina Roundup

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1.Retina 2024 Mar 1;44(3):487-497. DOI: 10.1097/IAE.0000000000003980.

LIGHTSITE III-13-Month Efficacy and Safety Evaluation of Multiwavelength Photobiomodulation in Nonexudative (Dry) Age-Related Macular Degeneration Using the Lumithera Valeda Light Delivery System

Boyer, David MD; Hu, Allen MD; Warrow, David MD; Xavier, Samantha MD; Gonzalez, Victor MD; Lad, Eleonora MD, PhD; Rosen, Richard B. MD; Do, Diana MD; Schneiderman, Todd MD; Ho, Allen MD; Munk, Marion R. MD, PhD; Jaffe, Glenn MD; Tedford, Stephanie E. PhD; Croissant, Cindy L. MBA; Walker, Michael PhD; Rückert, Rene MD, MBA; Tedford, Clark E. PhD.

Purpose:

The LIGHTSITE III study evaluated multiwavelength photobiomodulation (PBM) therapy in nonexudative (dry) age-related macular degeneration (AMD) using the LumiThera Valeda Light Delivery System.

Methods:

LIGHTSITE III is a randomized, controlled trial to assess the safety and effectiveness of PBM in dry AMD. Subjects were given multiwavelength PBM (590, 660, and 850 nm) or Sham treatment delivered in a series of nine sessions over 3 to 5 weeks every four months over 24 months. Subjects were assessed for efficacy and safety outcomes. Data from the 13-month analysis are presented in this report.

Results:

A total of 100 subjects (148 eyes) with dry AMD were randomized. LIGHTSITE III met the primary efficacy best-corrected visual acuity endpoint with a significant difference between PBM (n = 91 eyes) and Sham (n = 54 eyes) groups (Between group difference: 2.4 letters (SE 1.15), CI: −4.7 to −0.1, $P = 0.02$) (PBM alone: 5.4 letters (SE 0.96), CI: 3.5 to 7.3, $P < 0.0001$; Sham alone: 3.0 letters (SE 1.13), CI: 0.7–5.2, $P < 0.0001$). The PBM group showed a significant decrease in new onset geographic atrophy ($P = 0.024$, Fisher exact test, odds ratio 9.4). A favourable safety profile was observed.

Conclusion:

LIGHTSITE III provides a prospective, randomized, controlled trial showing improved clinical and anatomical outcomes in intermediate dry AMD following PBM therapy.

PMID: 37972955

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2.Int J Retina Vitreous. 2024 Apr 2;10(1):30. DOI: 10.1186/s40942-024-00550-8.

A combination of suprachoroidal injection of triamcinolone using a custom-made needle and intravitreal Ziv-aflibercept every eight weeks to manage naïve/denovo central DME: a single-center retrospective case series

Marashi A, Baba M, Abu Ghedda S, Kitaz MN, Zazo A.

Background:

Previous studies have shown promising effects of combining intravitreal bevacizumab and suprachoroidal injection of triamcinolone acetonide in treating DME. However, further research is needed.

Objective:

To assess the efficacy and safety of combining both intravitreal Ziv-aflibercept and suprachoroidal injection of triamcinolone acetonide using a custom-made needle in naïve and de novo central diabetic macular edema (DME) patients every eight weeks for 24 weeks.

Methods:

Central macular thickness was measured via spectral domain-optical coherence tomography, and best-corrected visual acuity was measured via a Snellen chart at baseline and at 4, 8, 12, 16, and 24 weeks post-injection. Additionally, cataract progression, intraocular pressure (IOP), and ocular safety were analyzed.

Results:

A total of 10 eyes of 6 patients were treated with suprachoroidal injections of triamcinolone acteonide combined with an intravitreal injection of Ziv-aflibercept. Vision improved from 0.69 log minimum angle of resolution (MAR) at baseline to 0.39 log MAR after treatment. Central macular thickness significantly decreased from 462.3 ± 166 µm at baseline to 362.7 ± 77.6 µm at 24 weeks postinjection.

Conclusion:

Suprachoroidal injection of triamcinolone using a custom-made needle with the intravitreal agent Ziv-aflibercept to treat de novo/naïve central DME has favorable outcomes and adequate safety results. Moreover, this study demonstrated the benefit of adapting the previous treatment combination for extending the interval between anti-VEGF treatments from 4 to 8 weeks, which could prevent further expenses, especially in low-income countries.However, large multicenter randomized clinical trials with longer follow-up periods are needed to assess this treatment route, especially in low-income and resourced countries.

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3.**Retina 2024 Mar 20. Online ahead of print; DOI:10.1097/IAE.0000000000004107**

Introducing a customized low-cost macular buckle

Kortuem, Friederike C MD MSc; Ziemssen, Focke MD; Neubauer, Jonas MD; Bartz-Schmidt, Karl Ulrich MD; Dimopoulos, Spyridon MD

Purpose:

To demonstrate a novel surgical technique that is a low-cost alternative to commercial implants for macular buckling in high myopia.

Methods:

A silicon encircling band serves as the anchor. A second silicon circling band is employed, with a 10mm silicon strip to widen the posterior scleral indentation. This band is inserted posteriorly the lateral and inferior rectus muscles are pushed behind the globe, orienting it in a superior-temporal to inferio-nasal position with the silicone strip directly under the macula. For better visualization, the placement of the macular buckle is done under the microscope.

Results:

The placement of the macular buckle led to reattachment of the central retina in treated patients during long-term follow-up. This technique eliminates the need for detaching a rectus muscle. Visual acuity remained stable throughout the follow-up period.

Conclusion:

This customized macular buckle technique can improve the anatomical outcome in patients with central retinal detachment due to high myopia.

PMID: 38513246

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4.Int J retina Vitreous. 2024 Jan 18;10(1):7. DOI: 10.1186/s40942-023-00524-2.

Autologous internal limiting membrane transplantation achieves anatomic closure and functional improvement in the treatment of large, persistent macular holes

Hanna Camenzind-Zuche, Lucas Janeschitz-Kriegl, Pascal W. Hasler & Christian Prünte

Purpose:

To evaluate the clinical outcome of subretinal autologous internal limiting membrane (ILM) transplantation during pars-plana vitrectomy for persistent full-thickness macular hole (FTMH) repair.

Methods:

Retrospective, consecutive case series of 13 eyes (13 patients) undergoing small-incision vitrectomy with ILM transplantation and air tamponade for large persistent FTMH after prior unsuccessful vitrectomy with posterior hyaloid detachment and ILM peeling.

Main outcome measures:

For all eyes, high-definition spectral domain optical coherence tomography scans (SD-OCT Spectralis, Heidelberg Engineering GmbH, Germany) of the macula were routinely performed before surgery, 1 and 4 weeks after surgery, and at the final follow-up visit. Additionally, age, gender, axial length, macular hole diameter, biomicroscopic fundus evaluation and best-corrected visual acuity (BCVA) at baseline, 1 and 4 weeks after surgery, and at the final follow-up visit were analyzed.

Results:

Anatomic closure was achieved in all 13 cases (100% success rate). Closure pattern was classified in accordance with to Rossi et al. (Graefe's Arch Clin Exp Ophthalmol 258(12):2629–2638, 2020). Mean baseline BCVA logMAR was 0.93, mean postoperative BCVA logMAR was 0.66 with a mean postoperative follow-up period of 11.4 months. No re-opening occurred during the observation period.

Conclusions:

Placing an autologous ILM-transplant in the subretinal space beneath the margin of the FTMH can support anatomic restauration and functional improvement in large, persistent FTMHs.

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DOI: 10.1186/s40942-023-00524-2

5. Int J retina Vitreous.2024 Jan 18;10(1):6. DOI: 10.1186/s40942-023-00504-6.

Efficacy of the use of perfluorocarbon as a temporary tamponade agent in severe ocular trauma and/or complex retinopexy: a scoping review.

Sara Margarita Pérez Pérez, Valentina Cárdenas Arias, Daniela Jaramillo Ramírez, Camilo Eduardo Martínez & Nathalie Tamayo Martínez

Background

Perfluorocarbon (PFC)possesses unique chemical properties that favor the pigment epithelium's adhesion and allows the drainage of subretinal fluid through retinal holes present in retinal detachment cases. However, PFC as a temporary tamponade agent has been limited due to its high potential for toxicity.

Main body

We conducted a scoping review regarding the use of PFC in vitreoretinal surgery as a temporary tamponade in subjects with severe ocular trauma or severe retinal detachment who received a therapeutic intervention (vitrectomy via posterior approach with the use of PFC as a temporary tamponade), compared to vitrectomy without the use of PFC as a temporary tamponade. Outcomes of interest were retinal reattachment, visual acuity (VA), postoperative complications and retinal toxicity. The search was performed in Medline, Medline In-Process & Other Non-Indexed Citations, Medline Daily Update, Embase databases. Reference lists from relevant review articles were also included. Two hundred thirty-eight studies were found, with no duplicate entries. In the first selection, 230 articles were eliminated; in the second selection, 6 additional articles were discarded. In total, 8 articles were obtained in this review. Two selected articles corresponded to animal studies and 6 to studies in humans. Regarding study design, 5 were case series, and 1 was a cohort study.

Conclusion

PFC as a short-term tamponade had high rates of reapplication, improved VA, and the most frequent adverse effects were reversible after PFC withdrawal. Nonetheless, the quality of the studies was poor. Studies with more rigorous methodologies are needed to determine visual and structural outcomes and potential risks of PFC use as a temporary tamponade in vitreoretinal surgery.

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6. Retina.2024 Apr 1;44(4):551-557. DOI: doi: 10.1097/IAE.0000000000004025.

CENTRAL BOUQUET HEMORRHAGE: Clinical and Multimodal Imaging Features

Ramtohul, Prithvi MD[*]; Au, Adrian MD, PhD[†]; Kunkler, Anne L. MD[‡]; Bacci, Tommaso MD[§]; Dolz-Marco, Rosa MD, PhD[¶]; Gallego-Pinazo, Roberto MD, PhD[¶]; Yannuzzi, Nicolas MD[‡]; Sarraf, David MD[†]; Freund, K. Bailey MD[,**].*

Purpose:

To describe the clinical characteristics, multimodal imaging features, and anatomic basis of a distinctive pattern of deep retinal haemorrhages located in the central fovea, a presentation referred to as “central bouquet haemorrhage.”

Methods:

Retrospective, observational, multicentre case series of eyes with central bouquet haemorrhage. Multimodal imaging features were reviewed and analyzed.

Results:

Ten eyes from 10 patients (4 women and 6 men), with a mean age of 55.6 ± 21.7 years (range 25–84 years) were included. Underlying etiologies were neovascular age-related macular degeneration (40%), lacquer cracks in pathological myopia (30%), macular telangiectasia Type 2 (10%), proliferative diabetic retinopathy (10%), and ocular trauma associated with angioid streaks (10%). On ophthalmoscopy, all eyes with central bouquet haemorrhage displayed a deep retinal haemorrhage with round margins in the central fovea and associated with petaloid haemorrhages radiating in the surrounding Henle fiber layer. Cross-sectional optical coherence tomography showed a well-delineated round hyperreflective lesion involving the central foveal Henle fiber layer/outer nuclear layer in all cases. Accompanying hyperreflective haemorrhages tracking along the obliquely oriented Henle fiber layer were present in all eyes. Resolution occurred in all patients, either spontaneously (30%) or after treatment with intravitreal anti-vascular endothelial growth factor injections (70%), and was associated with partial visual acuity improvement (from 20/113 to 20/36).

Conclusion:

“Central bouquet haemorrhage” is a novel descriptive term describing a characteristic round pattern of intraretinal blood in the fovea associated with Henle fiber layer haemorrhage and encountered in a spectrum of macular disease.

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