11:30 AM

Vision Preference Value Scale and Patient Preferences in Choosing Therapy for Symptomatic Vitreomacular Interface Abnormality

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OBJECTIVE To assess a vision preference value scale and patients' preferences in choosing therapy for symptomatic vitreomacular interface abnormality among patients across 3 continents.

PURPOSE To determine the preference value that individuals with vitreomacular interface abnormality (VIA) assign to their visual state, to determine these patients' preferences of potential VIA treatments, to assess factors affecting preference values such as vision in the affected eye and better-seeing eye, and to assess treatment preferences among affected individuals from 3 different continents.

METHODS A cross-sectional questionnaire study was performed. 213 patients from the U.S., United Kingdom, and Thailand with symptomatic VIA diagnosed within 1 year of

data collection were enrolled, with visual acuity (VA) less than 20/20 and symptoms primarily ascribed to VIA. Eligible consenting individuals answered a previously validated questionnaire to determine vision preference value, enthusiasm for treatment options, and visual functioning. Primary endpoints included overall preference value that individuals with VIA assign to their visual state and patients' preferences of potential treatments. Secondary endpoints included assessment of factors affecting preference values.

RESULTS 213 patients were enrolled between January 2015 and January 2017; diagnoses included epiretinal membranes (n=100), macular holes (n=99), and vitreomacular traction (n=14). The mean vision preference value (0-1: death to perfect health) was 0.759 (± SD 0.146) without differences identified among the 3 VIA types. Univariate analyses showed lower vision preference value to be associated with lower VA in the better-seeing eye (r=0.11; 95% CI: 0.028, 0.199; *P*=0.01), blurry vision (r=-0.07; 95% CI: -0.121, -0.025; *P*=0.003), and at UK (*P*=0.012) and Thailand (*P*=0.022) sites. The odds were lower for enthusiasm for vitrectomy with higher VA in the affected eye (OR=0.22; 95% CI: 0.09, 0.52; P=0.001), but higher with blurry vision (OR=3.14; 95% CI: 1.37, 7.17; *P*=0.007) and at the Thailand site compared to UK (P=0.002) and US (P<0.001). More patients were enthusiastic about vitrectomy (71.1%) compared with intravitreous injection (56.9%) for a difference of 14.2% (95% CI: 5.16%, 23.3%; *P*=0.002).

CONCLUSION Patients reported similar preference values among 3 types of symptomatic vitreomacular interface abnormalities. The data suggest that while the majority of patients with these conditions are enthusiastic about undergoing vitrectomy or an injection to treat it, likely due to the condition's impact on visual functioning, there may be a slight preference for vitrectomy.

TAKE HOME MESSAGE Patients reported similar preference values among 3 types of symptomatic vitreomacular interface abnormalities. In this study, most were enthusiastic about treatment and preferred vitrectomy.

HUMAN RESEARCH This study involves human research.
IRB Approval Status: Approved by institutional review board

11:38 AM

A New Dye Based on Anthocyanins From Açai Fruit (*Euterpe oleracea*) for Chromovitrectomy in Human Eyes: A Phase I Trial

- Mauricio Maia, MD, PhD

OBJECTIVE To report preliminary data about safety and efficacy of the dye based on anthocyanins from açai fruit *(Euterpe oleracea)* during chromovitrectomy in human eyes.

PURPOSE The aim of this study is to test the efficiency and safety profile of a new dye based on anthocyanins from açai fruit *(Euterpe oleracea)* at 25% concentration for the identification of posterior hyaloid and internal limiting membrane (ILM) during sutureless pars plana vitrectomy (PPV) in human eyes.

METHODS Phase I clinical trial approved by Ethics Committee from Federal University of Sao Paulo (Brazil) in 25 human eyes (NCT02691429). **Inclusion criteria:** Idiopathic macular holes less than 1 year. **Exclusion criteria:** Other ocular surgeries, trauma, cataract more than grade I (LOCS III), uveitis and glaucoma. **Surgical technique:** Four-port PPV+phaco, posterior hyaloid detachment and ILM peeling guided by the dye followed by C3F8 and 5 days of prone positioning. **Questionnaires:** Different

surgeons answered questionnaire about the dye capacity to stain the posterior hyaloid and ILM. **Follow-up:** Ophthalmological exams at baseline, 1, 7 and 30 and 180 days after PPV. **Statistics**: Student t-Test ($p<0.05$).

RESULTS 16 eyes were enrolled and 8 eyes were submitted to sutureless PPV. The questionnaires answered by 8 different surgeons showed that dye based on the anthocyanins from açai fruit *(Euterpe oleracea)* at 25% concentration aided both the posterior hyaloid detachment and also the internal limiting membrane (ILM) peeling by staining the ILM in purple color at all the 8 eyes tested by the opinion of 8 different surgeons. All the holes sealed and no signs of retinal toxicity were observed by ophthalmological exams at 6 months follow-up. The best-corrected visual acuity (BCVA) improved in all eyes ($p<0.05$) and no abnormalities were observed by ophthalmoscopic evaluation as well as fluorescein angiograms. Additionally, the full-field and multifocal electroretinograms (ERGs) performed at baseline and at distinct follow-up periods showed similar values ($p>0.05$).

CONCLUSION Preliminary results showed that the new dye based on anthocyanins from açai fuit (*Euterpe oleracea*) at 25% concentration was safe and useful for the identification of posterior hyaloid and ILM by a purple color during vitreoretinal surgery in humans and it may be an alternative for chromovitrectomy. Additional studies are necessary.

TAKE HOME MESSAGE The new dye based on anthocyanins from açai fuit (*Euterpe oleracea*) is safe and useful for the identification of posterior hyaloid and ILM by a purple color during vitreoretinal surgery in humans.

HUMAN RESEARCH This study involves human research.
IRB Approval Status: Approved by institutional review board

11:46 AM

Final Visual Acuity Versus Amount Visual Acuity of Improvemnt: Epiretinal Membrane Surgery

- Colin A. McCannel, MD
- Peter M. Kally, MD
- Tara A. McCannel, MD, PhD

OBJECTIVE To assess outcomes of surgical intervention of Epiretinal Membrane Surgeries, and to compare proportion of excellent final visual acuity with the amount of mean visual acuity of improvement.

PURPOSE To assess outcomes of surgical intervention of Epiretinal Membrane Surgeries, and to compare proportion of excellent final visual acuity with the amount of mean visual acuity of improvement.

METHODS Patients undergoing pars plana vitrectomy (PPV) for macular pucker/epiretinal membrane with a minimum follow-up of 6 months, and cataract extraction/IOL before final follow up follow-up were included. Excluded were eyes with co-morbidities affecting visual acuity (e.g. CRVO, BRVO, DME, exudative AMD, etc.). Rates of excellent final visual acuity (20/25 or better) and mean improvements were calculated and compared. Subgroups were created stratified by preoperative visual acuity and assessed.

RESULTS Total number of eyes that met all inclusion criteria was 47. Overall excellent visual acuity was achieved in 26/47 (55%). The mean improvement was from mean

preop VA of 20/47 to mean postop VA of 20/28 (p=2*10-10), a mean of 2 lines of improvement. The proportion of eyes with excellent visual acuity was 55%. Among eyes with preoperative visual acuity of 20/30 or better, 10 of 10 eyes (100%) had final visual acuity of 20/25 or better, and the mean improvement was from preop VA of 20/25 to postop VA of 20/21 (p=0.06). Among eyes with preop VA of 20/40-20/50, 11 of 23 eyes (48%) had visual acuity of 20/25 or better, and vision improved from a mean preop VA of 20/46 to mean postop VA of 20/30 (p=2*10-6). Among eyes with preoperative VA of 20/60 or worse, 5 of 14 eyes (22%) had visual acuity of 20/25 or better, and vision improved from a mean preop VA of 20/74 to mean postop VA of 20/31 (p=1*10-6). The overall Chi-Square p=0.0046 for VA of 20/25 or better across all groups.

CONCLUSION Visual acuity outcomes with regard to achieving excellent final VA was satisfactory overall, but highest among eyes undergoing surgery with VA of 20/30 or better. Mean improvement in VA can be misleading due to ceiling effect of possible improvement of among eyes with good visual acuity preoperatively. For high predictability of excellent final visual acuity results, intervention should be considered before visual acuity deteriorates to low levels.

TAKE HOME MESSAGE As surgical indication are changing for epiretialmembrane surgeyr, the final final visual acuity is preferable as measure of success than the amount of improvement.

HUMAN RESEARCH This study involves human research.
IRB Approval Status: Approved by institutional review board

11:54 AM

Should Epiretinal Membranes Be Removed Before Vision Drops Below 20/40?

- George J. Par, MD
- John S. Pollack, MD

OBJECTIVE To evaluate vision outcome after epiretinal membrane peel in patients with impaired visual function but good visual acuity.

PURPOSE To evaluate whether pseudophakic patients with symptomatic epiretinal membranes (ERM) and preoperative visual acuity ≥20/40 benefit from early intervention with small gauge vitrectomy and ILM/ERM peeling compared to patients for whom surgery is delayed until visual acuity declines to ≤20/50.

METHODS Retrospective chart review of a consecutive series of 119 pseudophakic eyes of 113 patients that underwent vitrectomy and ILM peeling for idiopathic epiretinal membrane by multiple physicians within a multi-physician retina practice. Exclusion criteria included cataracts and ocular conditions that could limit postoperative outcomes. Primary outcome measure was final best Snellen visual acuity. Secondary outcomes included the proportion of eyes with final visual acuity ≥20/40 and potential preoperative prognostic factors for improvement in visual acuity after surgery, including preoperative vision, severity of retinal wrinkling, central macular thickness, and ellipsoid zone status.

RESULTS Twenty-four of 27 (89%) eyes with ≥20/40 preoperative vision attained final postoperative vision of ≥20/40, while fifty-two of 88 (59%) eyes with preoperative vision ≤20/50 attained ≥20/40 vision at final postop vision. Postoperative reduction in retinal wrinkling was significantly associated with ≥ 2 lines improvement in visual acuity ($p=0.048$). The was no significant difference in central macular thickness between patients that gained ≥ 2 Snellen lines and those that gained < 2 lines ($p=0.12$). Although ellipsoid zone disruption was more common in eyes that failed to gain ≥ 2

lines visual acuity, this difference was not significant. There were no cases of retinal detachment or endophthalmitis.

CONCLUSION Removal of ERMs before vision drops to ≤20/50 may increase the likelihood attaining final postoperative vision of ≥20/40. Larger prospective studies are required to determine the significance of this observation.

TAKE HOME MESSAGE We are more likely to preserve vision by performing epiretinal membrane sooner than we are to regain vision after significant decline in vision.

HUMAN RESEARCH This study involves human research.
IRB Approval Status: Approved by institutional review board