Contrast recognizability during brilliant blue G - and heavier-than-water brilliant blue G-assisted chromovitrectomy: a quantitative analysis

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Purpose: To evaluate the potential of heavier-than-water brilliant blue G (BBG-D(2) 0) to stain the internal limiting membrane (ILM) during chromovitrectomy.

Methods: In a nonrandomized, prospective, clinical multicentre study, 71 consecutive chromovitrectomy interventions in 71 patients were analysed. During routine 23-gauge vitrectomy, conventional 0.25 mg/ml BBG was employed in 21 and 0.25 mg/ml BBG-D(2) 0 in 50 patients. All interventions were videotaped. Post-operatively, video frames were viewed and dye performance assessed subjectively and objectively. Main outcome measure was the chromaticity difference between the stained ILM and the unstained underlying retina, measured by means of an objective and quantitative analysis method to describe colour contrast strengths as they are perceived by the human eye.

Results: Removal of the ILM was possible in all interventions without additional vital dyes. BBG-D(2) 0 readily sank to the retinal surface, while conventional BBG tended to swirl up throughout the vitreous cavity. Conventional BBG was removed either with active suction or with a flute needle. Brilliant blue G-D(2) 0 needed to be whirled up from the retinal surface with a flute needle before aspiration. Objective chromaticity measurements yielded a mean chromaticity score of 7.98 for BBG-D(2) 0 and 6.51 for BBG (p = 0.09).

Conclusions: Brilliant blue G-D(2) 0 readily sinks to the retinal surface after injection and can be conveniently removed with a flute needle or active suction during chromovitrectomy. Based on the premises of the chromaticity measurements in this study, BBG's ILM staining capacity was not significantly improved through the recent revision its preparation, although a tendency towards slightly improved contrasts between the ILM and the underlying retina was observed.