ing beam of the laser device. To our knowledge, the described sham techniques have not been validated for use as masked controls for the laser treatment of floaters.

Lastly, 1 investigator performed all laser procedures and statistical analysis and had full access to all the data in the study, yet the authors assert that the study was masked. It is therefore possible that several biases[3] could have been introduced, including: (1) selection bias (biased allocation to interventions) because of inadequate generation of a randomized sequence and inadequate concealment of allocations prior to assignment; (2) performance bias associated with the investigator's knowledge of the allocated interventions by participants and personnel during the study, and (3) detection bias associated with the outcome assessors' knowledge of the allocated interventions.

Jan Kokavec, BSc, MBBS, MMed
Ghee Soon Ang, FRCOphth, FRCSEd, FRANZCO
Justin C. Sherwin, MBBS, BMedSc, MPhil

Author Affiliations: South Australian Institute of Ophthalmology, University of Adelaide, South Australia, Australia (Kokavec); Royal Victorian Eye and Ear Hospital, East Melbourne, Victoria, Australia (Ang); Oxford University Hospitals National Health Service Foundation Trust, Oxford, England (Sherwin).

Corresponding Author: Jan Kokavec, BSc, MBBS, MMed, South Australian Institute of Ophthalmology, University of Adelaide, South Australia, Australia 5000 (jkokavec@gmail.com).

Published Online: March 8, 2018. doi:10.1001/jamaophthalmol.2018.0207

Conflict of Interest Disclosures: All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. No disclosures were reported.

1. Shah CP, Heier JS. YAG laser vitreolysis vs sham YAG vitreolysis for symptomatic vitreous floaters: a randomized clinical trial. *JAMA Ophthalmol*. 2017;135(9):918-923.

2. Kokavec J, Wu Z, Sherwin JC, Ang AJ, Ang GS. Nd:YAG laser vitreolysis versus pars plana vitrectomy for vitreous floaters. *Cochrane Database Syst Rev*. 2017;6:CD011676.

3. Higgins JP, Green S, eds. *Cochrane Handbook for Systematic Reviews of Interventions*. Vol 4. Hoboken, NJ: John Wiley & Sons; 2011.

To the Editor The negative impact of vitreous floaters is becoming increasingly apparent.[1] Clinically relevant cases with abnormal vitreous structure and degraded contrast sensitivity function can be called *vision-degrading vitreopathy* to distinguish from insignificant cases. Increasingly, patients with this condition are being offered therapy by various means.

Shah and Heier[2] recently reported neodymium-doped YAG laser treatment of Weiss rings. Throughout their article, the authors use the term *vaporize* to refer to the changes that YAG laser energy can induce ocular tissues. However, YAG lasers act primarily as photodisruptors and do not vaporize biologic tissues. Experiments show that less than 10% of absorbed laser energy contributes to vaporization, while the remainder is converted to mechanical disruption.[3] The distinction is important because referring to vaporization leads readers to imagine that treated tissues disappear and that the path of light to the retina is rendered clear. In reality, the photodisruptor effect breaks down larger structures into smaller ones that are often not visible using biomicroscopy or fundus photography of the type that Shah and Heier used. These can still potentially still able to disturb vision by degrading contrast sensitivity function.[1,4,5]

This may have been the case in the study by Shah and Heier,[2] which reported that "the YAG group reported significantly greater improvement in self-reported floater-related visual disturbance (54%) compared with sham controls (9%)." In addition, the authors report that only 19 patients of 36 treated participants (53%) experienced significantly or completely improved symptoms.[2] Although both findings were statistically better than sham controls, statistical significance does not necessarily equate with clinical significance. In this case, only half of treated participants got better, and those improved only by half.

Furthermore, Shah and Heier[2] used the National Eye Institute's Visual Functioning Questionnaire-25 to assess treatment outcomes and found results showing little improvement (per their Table 2). After YAG laser treatment, dependency improved only 4.6% and role difficulties 11.5%; near vision improved 5.9%, color vision 2.8%, peripheral vision 5.5%, and distance vision 9.4%. Are improvements of only 2.8% to 11.5% considered clinically relevant? Moreover, could the authors explain why general vision actually worsened by 3.5%, while treatment by limited vitrectomy has exhibited a 34.6% improvement in the same outcome measure in other studies?[5]

The lack of substantial vaporizing by YAG lasers may be an important reason the results were not better. I recommend that patients be made aware that YAG lasers primarily disrupt rather than vaporize biologic tissues, and thus may not yield the desired results. Lastly, only Weiss rings were treated in this study, so the findings may not apply to all vitreous opacities.

J. Sebag, MD, FRCOphth

Author Affiliation: VMR Institute for Vitreous Macula Retina, Huntington Beach, California.

Corresponding Author: J. Sebag, MD, FRCOphth, VMR Institute for Vitreous Macula Retina, 7677 Center Ave, Ste 400, Huntington Beach, CA 92647 (jsebag@vmrinstitute.com).

Published Online: March 8, 2018. doi:10.1001/jamaophthalmol.2018.0212

Conflict of Interest Disclosures: The author has completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Dr Sebag performs limited vitrectomy for select cases of vitreous floaters and has received personal fees from Abbott Laboratories. No other disclosures were reported.

Additional Contributions: The manuscript was very kindly reviewed by Jennifer I. Lim, MD, of the University of Illinois at Chicago. She was not compensated for this contribution.

1. Milston R, Madigan MC, Sebag J. Vitreous floaters: Etiology, diagnostics, and management. *Surv Ophthalmol*. 2016;61(2):211-227.

2. Shah CP, Heier JS. YAG laser vitreolysis vs sham YAG vitreolysis for symptomatic vitreous floaters: a randomized clinical trial. *JAMA Ophthalmol*. 2017;135(9):918-923.

3. Vogel A, Noack J, Nahen K, et al. Energy balance of optical breakdown in water at nanosecond to femtosecond time scales. *Appl Phys B*. 1999;68:271-280.

4. Garcia GA, Khoshnevis M, Yee KMP, Nguyen-Cuu J, Nguyen JH, Sebag J. Degradation of contrast sensitivity function following posterior vitreous detachment. *Am J Ophthalmol*. 2016;172:7-12.

5. Sebag J, Yee KMP, Wa CA, Huang LC, Sadun AA. Vitrectomy for floaters: prospective efficacy analyses and retrospective safety profile. *Retina*. 2014;34(6):1062-1068.