

Third is the role of tarsorrhaphy in the severe dry eye; the authors did not discuss tarsorrhaphy in their patients. This is one of our usual procedures, especially for the severe dry eye.<sup>2</sup> Our question regards how many patients underwent tarsorrhaphy before receiving AST. How did they manage the confounding effect of tarsorrhaphy in these patients?

Fourth, the authors included different systemic diseases with different pathophysiology and management like Sjögren syndrome and mucous membrane pemphigoid. We would like to ask whether there was any subgroup analysis in this setting.

Fifth, they compared the percentage of patients with punctate epithelial erosion, filamentary keratopathy, and corneal epithelial defects. In this sample size with 51 patients, a “before- and after-treatment” analysis of tear break-up time, aqueous tear production (Schirmer test), fluorescein clearance test, or tear function index works better rather than reporting and comparing the percentage of patients with each finding.

Sixth, there is no subgroup analysis to show the effect of increased concentrations of AST in some patients on final results.

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FUNDING/SUPPORT: NO FUNDING OR GRANT SUPPORT.  
Financial Disclosures: The following authors have no financial disclosures: Mohammad Soleimani, Seyed Ali Tabatabaei, and Razieh Mahmoudzadeh. The authors attest that they meet the current ICMJE criteria for authorship.

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#### REFERENCES

1. Ali TK, Gibbons A, Cartes C, et al. Use of autologous serum tears for the treatment of ocular surface disease from patients with systemic autoimmune diseases. *Am J Ophthalmol* 2018;189:65–70.
  2. Valim V, Trevisani VF, de Sousa JM, Vilela VS, Belfort R Jr. Current approach to dry eye disease. *Clin Rev Allergy Immunol* 2015;49(3):288–297.
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## Stroke Risk and Risk Factors in Patients With Central Retinal Artery Occlusion



EDITOR:

WE READ WITH INTEREST THE RECENTLY PUBLISHED article<sup>1</sup> and commentaries<sup>2,3</sup> on the stroke risk and acute management of patients with central retinal artery occlusion (CRAO). As emphasized by Lavin and associates,<sup>1</sup> CRAO patients have a high risk of stroke and

cardiovascular events. In Lavin and associates' series of 103 patients with acute CRAO seen within 7 days of onset of visual loss, 37.3% of the 67 patients with brain magnetic resonance imaging had coincident acute strokes, 36.7% of patients had severe carotid disease (greater than 70% stenosis, dissection, or intra-arterial thrombus), 33% presented with hypertensive emergency, and 20% had a myocardial infarction or severe cardiac disease. Urgent evaluation of these patients by stroke neurologists and ophthalmologists in the emergency department resulted in rapid surgical intervention in 25% of patients and a change in medication in 93% of patients. Death occurred prior to the 2-year follow-up in 8% of CRAO patients, emphasizing the severity of systemic diseases associated with CRAOs.

These results are similar to those of recently published studies (see reference 4) and clearly highlight the need to expedite the evaluation and treatment of CRAO patients. Unfortunately, this is still a matter of some debate in the United States and many ophthalmologists continue to delay this process by not sending acute CRAO patients immediately to an emergency department affiliated with a stroke center.<sup>4,5</sup> Indeed, it is critical that the cause of CRAO be quickly and accurately identified in order to allow for appropriate secondary stroke prevention (which may require urgent surgical intervention) based on the mechanism of CRAO.

Despite a large body of literature supporting urgent evaluation of all acute CRAO patients by stroke neurologists, and the demonstrated value of cerebral imaging even in the absence of any neurologic symptoms, Dr Hayreh<sup>2</sup> continues to question the necessity of involving neurologists in the workup of CRAO patients. Urgent evaluation in an emergency department affiliated with a stroke center is not “controversial.” Rather, it is standard of care, as recommended by the American Heart Association and the American Stroke Association.<sup>4,6</sup>

A stroke workup is indeed expensive and needs to be guided by experts who will be able to immediately handle complications and decide whether costly treatments or interventions should be prescribed. Enormous progress in the understanding of stroke and prevention of devastating neurologic and cardiovascular complications has occurred within the past 20 years. Stroke is now a recognized neurologic specialty that requires a specific fellowship. The fact that Dr Hayreh suggests that ophthalmologists can do as well as stroke neurologists in the evaluation of CRAO patients is unsettling. As emphasized in Dr Arnold's commentary,<sup>3</sup> the paradigm for management of acute retinal ischemia has changed. Dr Hayreh's approach is outdated and potentially dangerous. Ophthalmologists should continue to practice ophthalmology and leave cerebrovascular diseases to stroke neurologists. Eye care providers play an essential role in evaluating patients with acute visual loss urgently and by making the correct diagnosis of acute retinal ischemia. Once the diagnosis is established, they should follow existing guidelines and send these patients

immediately to the nearest stroke center without obtaining any further workup themselves.<sup>4</sup>

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FUNDING/SUPPORT: NO FUNDING OR GRANT SUPPORT. Financial Disclosures: Valerie Biousse is a consultant for Gensight Biologics (France) and received research support from the NIH/PHS (P30-EY006360), NIH (R01-NS089694), and Research to Prevent Blindness. Nancy J. Newman is a consultant for Gensight Biologics (France) and serves on the Data Safety Monitoring Board for Quark Pharmaceuticals (Israel) clinical trial, has provided expert testimony on the topic of optic disc edema, and has received research support from NIH grants (R01-NS089694, P30-EY006360) and Research to Prevent Blindness Lew R. Wasserman Merit Award. The authors attest that they meet the current ICMJE criteria for authorship.

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#### REFERENCES

1. Lavin P, Patrylo M, Hollar M, Espaillat KB, Kirshner H, Schrag M. Stroke risk and risk factors in patients with central retinal artery occlusion. *Am J Ophthalmol* 2018;196:96–100.
  2. Hayreh SS. Do patients with retinal artery occlusion need urgent neurological evaluation? *Am J Ophthalmol* 2018;196:53–56.
  3. Arnold AC. Urgent evaluation of the patient with acute CRAO. *Am J Ophthalmol* 2018;196:xvi–xvii.
  4. Biousse V, Nahab F, Newman NJ. Management of acute retinal ischemia. Follow the guidelines! *Ophthalmology* 2018;125(10):1597–1607.
  5. Youn TS, Lavin P, Patrylo M, et al. Current treatment for central retinal artery occlusion: a national survey. *J Neurol* 2018;265(2):330–335.
  6. Olsen TW, Pulido JS, Folk JC, Hyman L, Flaxel CJ, Adelman RA. Retinal and Ophthalmic Artery Occlusions Preferred Practice Pattern®. *Ophthalmology* 2017;124(2):P120–P143.
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## Five-Year Postoperative Outcomes of Bilateral Aphakia and Pseudophakia in Children up to 2 Years of Age: A Randomized Clinical Trial



EDITOR:

WE READ WITH INTEREST THE RECENT ARTICLE BY VASAVADA and associates<sup>1</sup> reporting the results of their clinical trial randomizing children <2 years with bilateral cataracts to intraocular lens (IOL) implantation or aphakia. They reported a lower incidence of visual axis opacities (VAO) in the pseudophakic group than did the Infant Aphakia Treatment Study (IATS) while reporting similar visual acuities in the 2 treatment groups.<sup>2</sup> The low incidence of VAO in the Vasavada study is to be commended; however, the patient populations in these studies differed in 2 important ways that make comparison difficult. First, the median

age of the children undergoing IOL implantation was quite different: IATS = 1.8 months; Vasavada = 6.0 months. The rate of VAO is much higher after cataract surgery in children <6 months of age, even when performed by an experienced surgeon.<sup>3</sup> Second, all patients in the IATS had unilateral cataracts, 63% of which were persistent fetal vasculature (PFV) or nuclear, whereas no patients in the Vasavada study had PFV and the number of nuclear cataracts is unknown. In particular, PFV is associated with a higher incidence of adverse events.<sup>4</sup> Most patients in the Vasavada study had lamellar or total cataracts compared to <4% of the IATS patients.

Vasavada and associates reported that only 2 of 30 (6%) patients randomized to aphakia in their study wore contact lenses for >1 year. In contrast, contact lens wear averaged over 90% for the children randomized to aphakia in the IATS.<sup>5</sup> Vasavada and associates attributed this difference to the fact that parents were not charged for contact lenses in the IATS and “monitoring of compliance was performed by regular home visits by trained personnel.” While it is true that contact lenses were provided at no cost to parents in the IATS, home visits were not part of the IATS protocol.<sup>2</sup>

The Vasavada protocol mandated that patients undergo an examination under anesthesia every 3 months for the first postoperative year and then every 6 months until age 5 years. Assuming that a patient undergoing cataract surgery at age 6 months returned for each examination, they would have received general anesthetics 13 times by age 5 years. Because of concerns about the neurotoxicity of general anesthesia in young children, general anesthesia was reserved for children undergoing additional surgeries in the IATS.<sup>6</sup> In fact, the need for additional general anesthetics for children in the pseudophakic group was one of the primary reasons we advised against primary IOL implantation in infants unless “the cost and handling of a contact lens would be so burdensome as to result in significant periods of uncorrected aphakia.”<sup>2</sup> We congratulate Vasavada and associates on their excellent surgical outcomes in a challenging patient population and we agree that IOLs are a good option for children >6 months of age. However, for the reasons stated and for long-term refractive considerations not addressed in their paper, we still believe that it is generally better to leave infants <6 months of age aphakic after cataract surgery and to correct their aphakia with contact lenses or spectacles.

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FUNDING/SUPPORT: SUPPORTED BY NATIONAL INSTITUTES of Health Grants U10 EY13272, U10 EY013287, UG1 EY013272, UG1 EY025553, P30 EY026877 and Research to Prevent Blindness, Inc, New York, New York, USA. Financial Disclosures: The following