

assessment of propensity scores are described in our previous article.¹ The demographics, comorbidities, and use of comedication were comparable between subjects with NAION and their matched controls when they entered the cohort. The results of sensitivity analyses also showed that incident NAION was not associated with an increased risk of ischemic stroke (HR = 1.10; 95% CI, 0.48–2.53 in model 1; HR = 1.06; 95% CI, 0.46–2.42 in model 2; and HR = 1.03; 95% CI, 0.45–2.35 in model 3) and hemorrhagic stroke (HR = 1.40; 95% CI, 0.91–2.14 in model 1; HR = 1.31; 95% CI, 0.85–2.00 in model 2; and HR = 1.27; 95% CI, 0.83–1.95 in model 3). We used SAS software version 9.3 (SAS Inc., Cary, North Carolina) and R programming version 3.1.0 (R Foundation, Vienna, Austria) for all analyses. In conclusion, NAION is not associated with a subsequent risk of both hemorrhagic and ischemic stroke in the general population of South Korea.

SANG JUN PARK
HEE KYUNG YANG
SEONG JUN BYUN
KYU HYUNG PARK
JEONG-MIN HWANG
Seongnam, Republic of Korea

CONFLICT OF INTEREST DISCLOSURES: THE AUTHORS declare that they have no competing interests.

REFERENCES

1. Park SJ, Yang HK, Byun SJ, Park KH, Hwang JM. Risk of stroke after nonarteritic anterior ischemic optic neuropathy. *Am J Ophthalmol* 2019;200:123–129.
2. Lee YC, Wang JH, Huang TL, Tsai RK. Increased risk of stroke in patients with nonarteritic anterior ischemic optic neuropathy: a nationwide retrospective cohort study. *Am J Ophthalmol* 2016;170:183–189.

Reply



EDITOR:

WE THANK AWASTHI AND ASSOCIATES FOR THEIR INTEREST and positive comments on our paper.¹ We are pleased to provide clarifications on some of the points they raised.

We agree that choroidal neovascularization (CNV) were detected in only 6 patients using optical coherence tomography angiography. In the Method section, we pointed out that the presence of CNV detected by optical coherence tomography angiography was not an exclusion criterion. The presence of subretinal fluid in cases of CSC complicated by CNV could be considered a sign of CSC activity, and these CNV might have been “quiescent.”² Thus, it was interesting to evaluate the effect of ARM in these cases. In addition, the presence of CNV was found to be a factor of poor response to ARM treatment in the publication by Sacconi and associates.³ Our results support those findings.

Furthermore, the authors raised a concern over the lack of discussion about switching eplerenone to spironolactone. In our study, only 3 patients were switched from eplerenone to spironolactone therapy after 3 months because of a lack of efficacy. In those 3 patients, the treatment with spironolactone was also not effective and those patients were included in the “nonresponder” group. Additionally, the side effects occurred 3 to 6 months after the initiation of treatment (only the patients treated for at least 3 months were included in our study).

However, the aim of the study was to identify potential predictive factors for short-term (3 to 6 months) response to ARM treatment and not to evaluate or compare the clinical efficacy of both drugs and to evaluate the efficacy of a rescue therapy. We agree that these questions are very interesting and useful in clinical practice. Thus, further studies are needed to evaluate the effect of the switch or the rescue therapy.

We thank the authors for their insight into the possible role of corticosteroids on Bruch’s membrane structure.

Finally, as stated by the authors, we fully agree that the term “clinical study” would have been more appropriate than the term “clinical trial.” As a point of clarification, in Table 1, 23 of 60 patients achieved a complete resolution of subretinal fluid at 3 months (38.3%).¹

Again we thank Awasthi and associates for their interest, encouraging comments, and careful analysis of our study.

ELODIE BOUSQUET
MYRIAM DHUNDASS
RAPHAËL LEJOYEUX
Paris, France
ARI SHINOJIMA
Paris, France
Tokyo, Japan
VALÉRIE KRIVOSIC
SARAH MREJEN
ALAIN GAUDRIC
RAMIN TADAYONI
Paris, France

FINANCIAL DISCLOSURES: ELODIE BOUSQUET: CONSULTANT (Bayer, Germany). Valérie Krivosic: Board membership (Allergan, USA), educational presentation fee (Novartis, Switzerland; Bayer, Germany; Allergan, USA), meeting expenses (Bayer, Germany). Sarah Mrejen: Consultant (Novartis, Switzerland; Bayer, Germany). Alain Gaudric: Educational presentation fees (Novartis, Switzerland), meeting expenses (Novartis, Switzerland; Bayer, Germany), safety committee participation (Thrombogenics, USA). Ramin Tadayoni: Board membership (Alcon, Switzerland; Novartis, Switzerland; Allergan, USA; Bausch and Lomb, USA; Pfizer, USA; Alimera, USA; Bayer, Germany; FCI-Zeiss, France; Thrombogenics, Belgium), consultant (Allergan, USA; DORC, Netherlands; Alcon, Switzerland; Novartis, Switzerland; Takeda, Japan; Bausch and Lomb, USA; FCI-Zeiss, France; Thrombogenics, Belgium), lecture fees (Alcon, USA; Bausch and Lomb, USA; Novartis, Switzerland; Allergan, USA; Pfizer, USA; Takeda, Japan; Bayer, Germany; Alimera, USA), educational presentation fee (Bausch and Lomb, USA; Novartis, Switzerland; Zeiss, Germany; Sony, Japan; Alcon, Switzerland; Allergan, USA), meeting expenses (Novartis, Switzerland; Alcon, Switzerland; Allergan, USA; Bausch and Lomb, USA; Pfizer, USA; Bayer, Germany; DORC, Netherlands; Takeda, Japan; Servier, France; Alimera, USA).

REFERENCES

1. Bousquet E, Dhundass M, Lejoyeux R, et al. Predictive factors of response to mineralocorticoid receptor antagonists in non-resolving central serous chorioretinopathy. *Am J Ophthalmol* 2018;198:80–87.
2. Bousquet E, Bonnin S, Mrejen S, Krivosic V, Tadayoni R, Gaudric A. Optical coherence tomography angiography of flat irregular pigment epithelium detachment in chronic central serous chorioretinopathy. *Retina* 2018;38(3):629–638.
3. Sacconi R, Baldin G, Carnevali A, et al. Response of central serous chorioretinopathy evaluated by multimodal retinal imaging. *Eye (Lond)* 2018;32(4):734–742.

Predictive Factors of Response to Mineralocorticoid Receptor Antagonists in Nonresolving Central Serous Chorioretinopathy



EDITOR:

WE READ THE ARTICLE BY BOUSQUET AND ASSOCIATES¹ with great interest. We applaud them for proposing a cut-off value for subfoveal choroidal thickness (SFCT) as a predictive factor for treatment response to mineralocorticoid receptor antagonists (MRA). However, we would like to comment upon few points.

Table 2 mentions choroidal neovascular membrane (CNVM) was detected on optical coherence tomography angiography (OCTA) in a total of 6 patients; the methodology, however, does not seem to include OCTA as a part of multimodal imaging. Furthermore, as CNVMs have an altogether different treatment protocol and eplerenone has no activity on CNVM, we believe that these cases should have been excluded.

It would have been better for the understanding of readers if the authors would have discussed the rationale for switching the eplerenone to spironolactone in 3 patients, given that they have stated in the discussion that spironolactone had higher numbers of adverse events. Zola and associates recommended switching from spironolactone to eplerenone at 3 months.² Treatment was discontinued in 9 patients overall owing to various adverse effects, but it is not elaborated at what point of time treatment was discontinued. This may

hold a bearing, as these patients were included in the analysis until the end of the study. Also, there was no rescue treatment mentioned for nonresponders, patients with recurrences, and patients who discontinued because of adverse effects. Chin and associates reported greater decrease in central macula thickness in the spironolactone group.³ Thus subgroup analysis on the clinical efficacy of both drugs would have been useful.

There was a significantly higher proportion of steroid users in the nonresponder group. Steroids can cause structural alterations in the Bruch membrane,⁴ and their use might have an impact on nonresolution.

There are a few minor typographical errors that we want to bring to attention: (1) retrospective clinical study in place of clinical trial; (2) in Table 1, 60 eyes are mentioned at 3 months and if we calculate 22 eyes should be having subretinal fluid resolution.

Despite these few points, this article has been the first article to determine a cut-off value for identifying nonresponders to MRA among the all nonresolving central serous chorioretinopathy patients. This will help us in future for treatment and prognostication of our patients.

UPMA AWASTHI

ROHINI GROVER

ABHISHEK VARSHNEY

CHETAN VIDEKAR

Moradabad, India

FUNDING/SUPPORT: NO FUNDING OR GRANT SUPPORT.
Financial Disclosures: The following authors have no financial disclosures: Upma Awasthi, Rohini Grover, Abhishek Varshney, and Chetan Videkar. The authors attest that they meet the current ICMJE criteria for authorship.

REFERENCES

1. Bousquet E, Dhundass M, Lejoyeux R, et al. Predictive factors of response to mineralocorticoid receptor antagonists in non-resolving central serous chorioretinopathy. *Am J Ophthalmol* 2019;198:80–87.
2. Zola M, Daruich A, Matet A, Mantel I, Behar-Cohen F. Two-year follow-up of mineralocorticoid receptor antagonists for chronic central serous chorioretinopathy. *Br J Ophthalmol* 2018;0:1–6.
3. Chin EK, Almeida DR, Roybal CN, et al. Oral mineralocorticoid antagonists for recalcitrant central serous chorioretinopathy. *Clin Ophthalmol* 2015;9:1449–1456.
4. Oikarinen AI, Uitto J, Oikarinen J. Glucocorticoid action on connective tissue: from molecular mechanisms to clinical practice. *Med Biol* 1986;64:221–230.