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EDITORIAL

Chronic use of pentosan polysulfate sodium associated with risk of vision-threatening disease

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A recent article in *Ophthalmology* in May 2018 by Pearce et al. uncovered a potential vision-threatening complication associated with the long-term use of pentosane polysulfate sodium (PPS), an established treatment for interstitial cystitis and the only FDA-approved oral option, sold under the brand name Elmiron [1]. The authors should be commended for their work and we encourage the review of their initial report [2].

The article in *Ophthalmology* describes 6 patients presenting with a similar, unique retinopathy primarily affecting the macula, the portion of the retina responsible for central vision. In this report, a similar pattern of unique, macular pathology was identified in 6 patients and chart review revealed a consistent history of long-term exposure to PPS. Additional review revealed an additional 32 out of a total of 38 patients with long-term exposure to PPS; however, only the 6 originally reported patients were examined by the consultant ophthalmologist and it is unknown whether any of the additional 32 patients exhibited evidence for retinal pathology. The 6 initial patients underwent additional testing and based on a published reply by the same authors (Pearce et al.) to an article in November 2018, additional cases have been identified since the initial publication [3]. Despite the concordance of these reports, it remains unclear whether a true causal relationship exists between exposure to the drug and the development of this pigmentary maculopathy. Many questions remain regarding contributing factors, including length of exposure, dosage, and patient susceptibility.

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Although large-scale research is necessary to further elucidate a causal relationship between the agent and the described findings, it is possible that guidelines could emerge in the future that include routine surveillance, similar to patients taking hydroxychloroquine (HCQ). Ophthalmologists and rheumatologists have established screening guidelines to identify definitive signs of HCQ toxicity at an early enough time point to prevent vision-threatening damage. With regard to HCQ, the risk of toxicity is based on the daily dose and duration of use, which may be similar to the possible toxicity related to PPS use [4]. For patients with a past or current history of the use of PPS who complain of vision changes, current recommendations by the authors of the report recommend referral for a comprehensive ophthalmic examination with appropriate testing. Visual symptoms could include complaints of difficulty reading and prolonged adjustment to low or reduced light environments.

Given the potential severity of these suspected adverse effects associated with PPS, we felt that the readership of this journal should be aware of this developing, possible relationship. Although the implications of this discovery will ultimately evolve as new information surfaces, these findings are alarming for both physicians and patients, and highlight the importance of annual ophthalmic examinations for all patients. The two side effects commonly seen with the use of PPS—hair loss and rectal bleeding—are reversible changes resolved with cessation of the agent [5]. Unfortunately, the vision-threatening pigmentary maculopathy identified in this study is irreversible and vision loss of this nature is not recoverable. We believe that it is important to consider this potential risk associated with long-term PPS use when prescribing this agent, particularly in patients with preexisting retinal conditions, until more information is available.

Compliance with ethical standards

Conflicts of interest There are no relevant financial disclosures or conflicts of interest to report.

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References

1. Kivlin D, Lim C, Ross C, Whitmore K, Schellato T. The diagnostic and treatment patterns of urologists in the United States for interstitial cystitis/painful bladder syndrome. Urol Pract. 2016;3(4):309–14. https://doi.org/10.1016/j.urpr.2015.08.005.
2. Pearce WA, Chen R, Jain N. Pigmentary maculopathy associated with chronic exposure to pentosan polysulfate sodium. Ophthalmology. 2018;125(11):1793–802. https://doi.org/10.1016/j.ophtha.2018.04.026.
3. Pearce WA, Hanif AM, Jain N. Re: FDA BRUDAC 2018 criteria for interstitial cystitis/bladder pain syndrome clinical trials: future direction for research: J C Nickel and R Moldwin J Urol 2018;200:39–42. J Urol. 2018;200(5):1122–3. https://doi.org/10.1016/j.juro.2018.06.076.
4. Marmor MF, Kellner U, Lai TYY, Melles RB, Mieler WF. American Academy of Ophthalmology. Recommendations on screening for chloroquine and hydroxychloroquine retinopathy (2016 revision). Ophthalmology. 2016;123(6):1386–94. https://doi.org/10.1016/j.ophtha.2016.01.058.
5. Nickel JC, Barkin J, Forrest J, et al. Randomized, double-blind, dose-ranging study of pentosan polysulfate sodium for interstitial cystitis. Urology. 2005;65(4):654–8. https://doi.org/10.1016/j.urology.2004.10.071.