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Neurological Surgery

Title

Correlating the Neuro-ophthalmic Features in IIH with sCSF Leak

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INTRODUCTION

- A spontaneous cerebrospinal fluid (CSF) leak occurs when the CSF egresses from the subarachnoid space of the anterior or middle cranial fossa into the surrounding sinonasal or middle ear cavities through a dehiscence of the lamina dura .
- The incidence has been estimated to be 5 per 100,000 per year, typically affecting women more than men (9:1) with a peak age of around 40 years .
- Neuro-ophthalmic biomarkers have not been studied in patients with CSF leaks, especially for its association with idiopathic intracranial hypertension prior to their spontaneous leak.

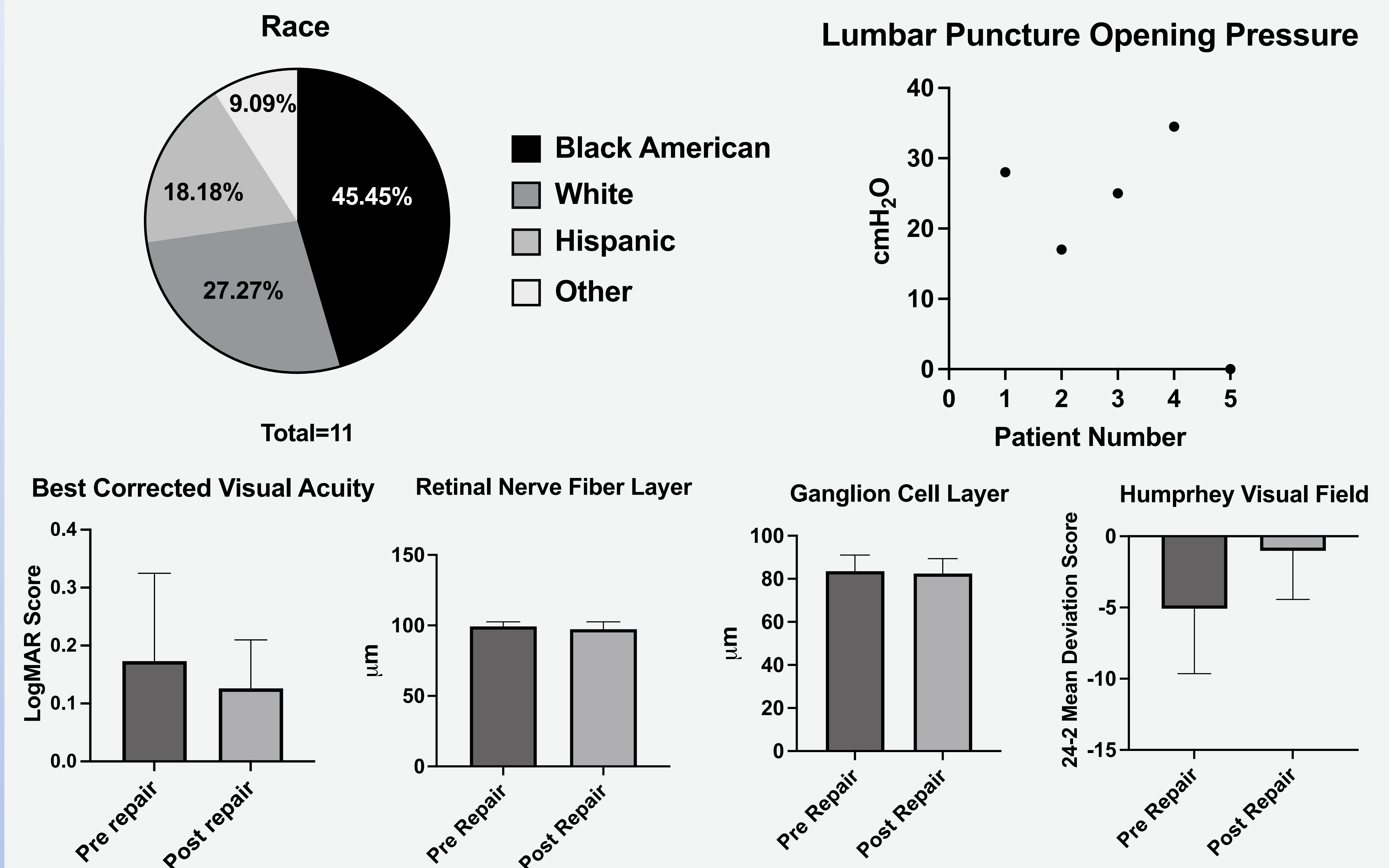
OBJECTIVES

- This study investigated the neuro-ophthalmic features of IIH in patients with sCSF leak.
- To further understand the association between these features and sCSF leak

METHODS

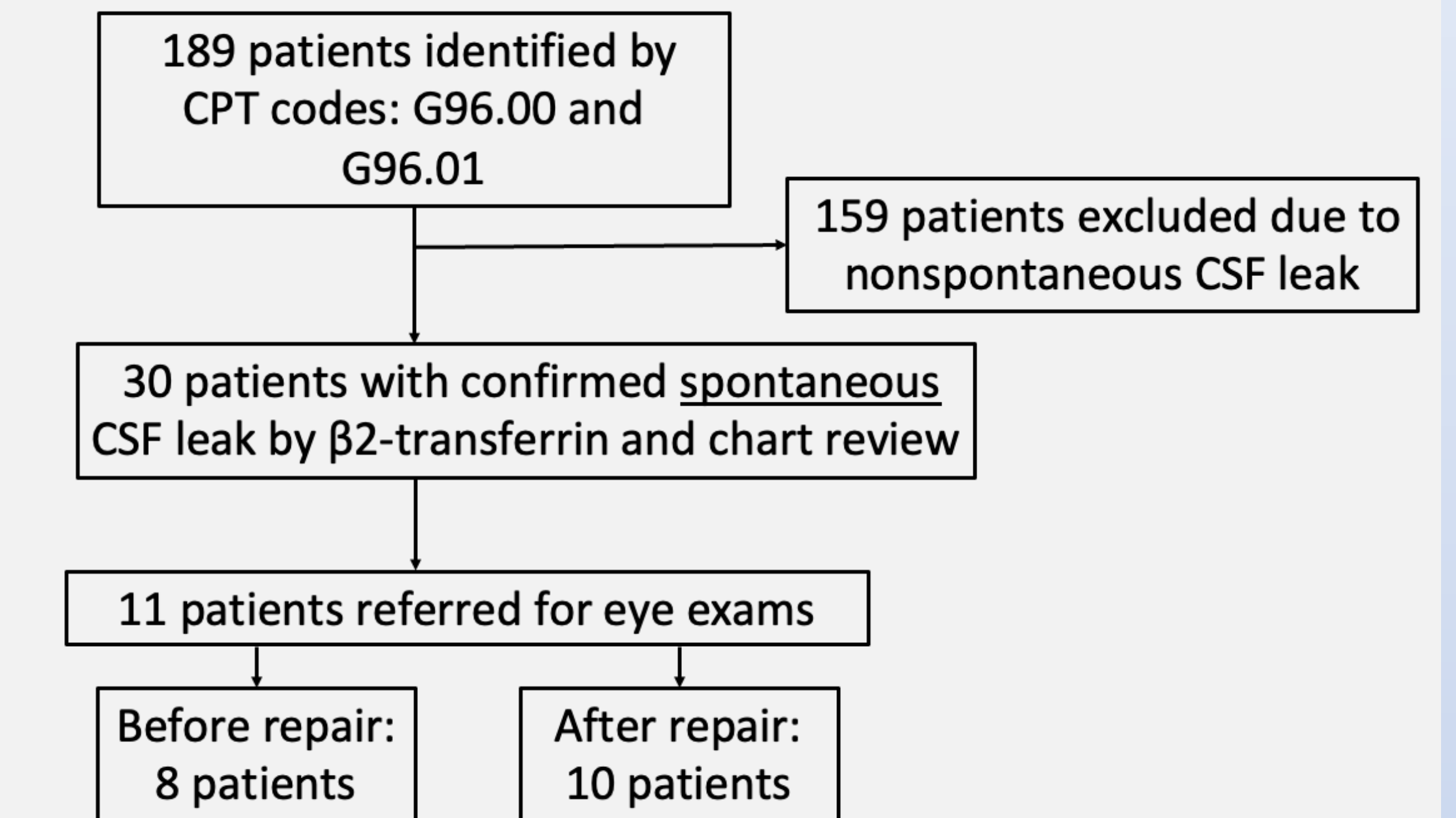
- A single institution, retrospective cohort study was conducted by querying for the CSF leak CPT codes (G96.00 and G96.01) in the electronic medical record system from June 2019 to July 2022.
- For patients with clinically confirmed diagnosis of sCSF leak, the demographics, eye exam and ophthalmic imaging details of both eyes were obtained.

RESULTS



- The mean age at sCSF diagnosis was 40.84 ± 10.26 and BMI was reported at 37.93 ± 7.41 .
- The best-corrected visual acuity was 20/30 prior to CSF leak repair and 20/25 post CSF leak repair ($p=0.398$).
- The intraocular pressure was 16 mm Hg prior to CSF leak repair and 16.21 post CSF leak repair ($p=0.819$).
- The mean retinal nerve fiber layer was $99.34\mu\text{m}$ prior to CSF leak repair and $97.35\mu\text{m}$ post CSF leak repair ($p=0.355$).
- The ganglion cell layer was $83.57\mu\text{m}$ prior to CSF leak repair and $82.47\mu\text{m}$ ($p=0.753$).
- The 24-2 mean deviation score for Humphrey Visual Field was -5.08 prior to CSF leak repair and -1.03 post CSF leak repair ($p=0.07$, normal values -2.00 to $+2.00$).

METHODS



CONCLUSION

- Given the similarities in demographics in patients with IIH and sCSF leak, neuro-ophthalmologic exams are recommended for all patients with sCSF leaks to screen for papilledema.
- A larger study is warranted to further investigate the association between IIH and recurrent sCSF leak through neuro-ophthalmologic exams.
- Future directions involve re-defining the multidisciplinary clinical management for sCSF leak, understanding the clinical use of acetazolamide post-operatively, and sleep apnea management to prevent recurrent leakage.

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