Evaluating the Efficacy of Venous Sinus Stenting in Pediatric Idiopathic Intracranial Hypertension

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Introduction

- Idiopathic intracranial hypertension (IIH) is increasingly recognized in pediatric patients, particularly in overweight, post-pubescent children aged 12 to 15 years **(Gaier and Heidary 2019)**.
- Previous case series have shown that venous sinus stenting (VSS) offers comparable efficacy to cerebrospinal fluid (CSF) diversion procedures, with fewer complications and revisions **(Lee et al. 2021; Carter et al. 2021; Schwarz et al. 2021)**.
- This study presents the largest single-center cohort to date, providing a comprehensive evaluation of VSS treatment efficacy and outcomes.

Methods

- This retrospective analysis includes patients under 18 diagnosed with IIH and evaluated for VSS at our institution.

Characteristic	Overall, N = 20	Stented, N = 10	Non-Stented, N = 10
Age	14 (11, 16)	15 (12, 16)	13 (9, 16)
Sex			
m	7 (35%)	3 (30%)	4 (40%)
f	13 (65%)	7 (70%)	6 (60%)
BMI (percentile)	97 (90, 99)	99 (95, 99)	95 (90, 97)
Headache	19 (95%)	10 (100%)	9 (90%)
Vision changes	10 (50%)	5 (50%)	5 (50%)
Diplopia	4 (20%)	1 (10%)	3 (30%)
Papilledema	17 (85%)	9 (90%)	8 (80%)
Tinnitus	10 (50%)	5 (50%)	5 (50%)
Opening pressure (mmHg)	32 (25, 40)	33 (31, 39)	26 (18, 41)

[1] Median (IQR); n (%)

Venous sinus stenting offers a promising solution for **pediatric patients** with **idiopathic intracranial hypertension** unresponive to medical managemet.

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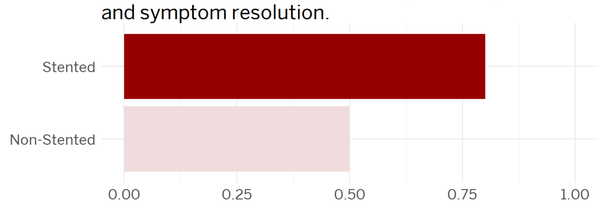
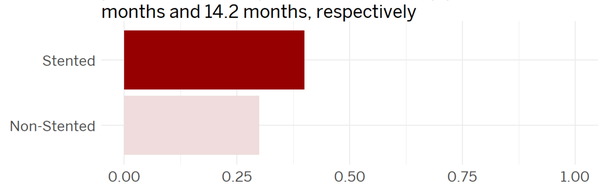
Results

A greater proportion of patients in the **stented** group showed a significant reduction in pressure gradient and symptom resolution.



There are no significant difference in continued use of hydrochlorothiazide between the **stented** and non-stented patients at follow up. The mean follow-up periods were 21.6 months and 14.2 months, respectively



- Diagnostic cerebral venography revealed bilateral stenosis in the transverse sinuses of six patients, bilateral stenosis of the transverse-sigmoid sinus junction in two patients, and unilateral stenosis of the right transverse sinus in one patient.
- There is a weak positive correlation between higher BMI and symptom resolution across both groups, but no statistically significant difference in symptom resolution between stented patients with BMI percentiles above and below the 90th percentile ($p = 0.170$).
- Younger patients (7-12 years) and middle age group (12-15 years) tend to have higher rates of symptom resolution compared to the oldest age group (15-18 years).
- There are no statistically significant differences in symptom resolution among different age groups, sexes, or pubertal stages. Similarly, there are no significant differences in pressure gradient response between these groups.

References

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