Idiopathic Intracranial Hypertension in Atypical Demographics

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Introduction

- Idiopathic intracranial hypertension (IIH) is the most common cause of papilledema; mainly affects women of reproductive age with elevated body mass index (BMI)
- The strong predilection for affecting women with elevated BMI suggests: role of estrogen synthesis in adipose tissue
- However, only a small minority of young women with elevated BMI develop IIH
- Individuals of any age, gender or body type can also be affected
- Atypical patients may have a different underlying mechanism of IIH
- *Gap in literature:* only limited small case series on atypical patients

OBJECTIVE

- To compare: **typical presentation** (women under 40 with elevated BMI) to **atypical presentation** (men, women diagnosed above 40, and normal BMI)

Methods

- A retrospective chart review of patients in two tertiary neuro-ophthalmology practices at UofT between 2016 and 2021
- Symptoms at presentation (headache, pulsatile tinnitus, transient visual obscuration), ocular examination findings at presentation and follow-up were reviewed, & MRI and lumbar puncture results
- Each atypical group was compared to the typical group using chi-squared testing, ANOVA, and post-hoc comparisons with Bonferroni corrections

Results and Discussion

Overall Analysis

- 193 typical patients; 50 atypical patients included (divided into: men, older patients, patients with normal BMI)
- No difference in presenting symptoms, LP pressure, and RNFL thickness between both groups
- Older patients presented with headache less (42.9% vs 77.2%)
- Mean deviation on OCT *significantly worse* in male patients
- **Final visual field outcome:** was significantly predicted by age and visual field at presentation

IIH in Men

- Worse visual outcomes
- Diagnosed at an older age: possibly due to referral bias as IIH is not considered
- Higher incidence of incidental papilledema
- **Final visual outcome:** Delay in diagnosis could be causing worse visual outcomes

IIH in Older Patients

- Low prevalence of headaches on initial presentation
- No difference in other symptoms and visual field loss compared to typical group
- Regression analysis: older age at diagnosis indicated worse visual field outcomes
- **Final visual outcome:** was not different between older patients and typical group
- Suggests no specific age cut-off for being at risk of poorer visual outcomes

IIH in Patients with Normal BMI

- Diagnosed at an older age in patients with normal BMI
- **Final visual outcomes:** equivalent with typical group

	Typical	Male	Older	Normal BMI
n	193	17	28	19
BMI	34.9 ± 5.8	36.5 ± 11.2	32.9 ± 9.4	23.4 ± 1.7***
Age	27.3 ± 5.6	37.2 ± 11.8***	48.0 ± 7.5***	32.3 ± 9.8*
Headache	149 (77.2)	12 (42.9	11 (64.7)**	14 (73.7)
LP opening pressure	37.0 ± 9.2 (n=98)	34.1 ± 9.1 (n=17)	33.2 ± 8.4 (n=27)	32.5 ± 7.5 (n=16)
Mean RNFL	166.2 ± 87.8	158.7 ± 109.8	169.0 ± 80.1	151.3 ± 111.2
Mean deviation VF	-4.52 ± 5.53	-10.16 ± 10.40*	-5.00 ± 6.74	-5.06 ± 6.75

Table 1. Clinical presentation of patients with idiopathic intracranial hypertension

	Typical	Male	Older	Normal BMI
n	154	14	24	14
Mean follow up (months)	20.3 ± 20.8	17.4 ± 21.1	30.0 ± 25.5	23.3 ± 21.4
Mean RNFL thickness	117.4 ± 46.2	116.6 ± 38.5	111.7 ± 28.2	102.3 ± 22.2
Mean deviation on VF	-3.97 ± 5.77	-9.97 ± 10.74	-6.36 ± 8.30	-3.96 ± 4.93
Surgical treatment	13 (8.4)	2 (14.3)	1 (4.2)	2 (14.3)
Medical treatment	52 (33.8)	7 (50.0)	10 (41.7)	8 (57.1)
Persistent papilledema	101 (65.6)	8 (57.1)	13 (54.2)	8 (57.1)
Optic atrophy	17 (11.0)	2 (14.3)	2 (8.3)	2 (14.4)

Table 2. Outcomes in patients with idiopathic intracranial hypertension.

Highlighted: *** p<0.001, ** p<0.01, * p<0.05

Results (cnt'd)

	Simple regression	Multiple Regression
Age	-0.037 (-0.13, 0.060)	-0.80 (-0.14, -0.19)**
BMI	-0.17 (-0.29, -0.045)**	-0.0031 (-0.073, 0.079)
Gender	5.99 (2.67, 9.32)***	1.77 (-0.41, 3.94)
Initial RNFL thickness	-0.012 (-0.022, -0.0018)*	-0.0010 (-0.0072, 0.0051)
Initial Mean deviation on VF	0.74 (0.65-0.83)***	0.73 (0.64, 0.82)***

Table 3. Predictors of final mean deviation on visual fields in patients with idiopathic intracranial hypertension; *** p<0.001, ** p<0.01, * p<0.05

Conclusions

In all demographics, presentation and clinical course of IIH is **similar**

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Specifically: men and normal BMI patients are diagnosed at **later age**

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Most important predictor of final visual outcome: **mean deviation on visual field at initial presentation**

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