Relative frequency and sub-types of constipation by migraine status in a healthcare population sample: Results of the Migraine Signature Study

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Background

There are several known gastrointestinal (GI) comorbidities of migraine. In addition, there are GI symptoms which commonly occur during migraine attacks, and that may linger interictally.[1] Little is known about the occurrence of constipation among people with migraine compared to people with non-migraine headache types.

Objective

To determine relative frequency and subtypes of constipation among patients with migraine and non-migraine headache controls in a large health system sample in the US.

Methods

- **Design**: The Migraine Signature Study (MSS) began in 2017 as a multiyear, multi-data source, observational study.
- **Setting**: Primary Care (PC) population at Sutter Health (SH), a large integrated healthcare network in 22 Northern California counties.
- **Survey 1**: In 2018, N=2,558 completed first web-based survey of migraine criteria (AMS/AMPP), symptomology, heath resource utilization and patient reported outcomes.
- **Survey 2**: In 2019, N=1,297 completed a second web-based survey including the Rome IV Diagnostic Questionnaire for Adults: Bowel Disorders and Central Nervous System Disorders of GI Pain Module (Constipation subsection).[2] Those surveyed had Electronic Healthcare Record (EHR) evidence of migraine (n=807), non-migraine headache (n=349), or neither (n=141).
- **ROME IV:** 29 items to assess abdominal discomfort or pain, bowel movement frequency, consistency (loose or hard), straining and blockage. Diagnostic criteria for conditions including irritable bowel syndrome (IBS) and functional constipation.
- **EHR data:** EHR data were accessed for migraine and other headache diagnostic and visit codes as well as to identify any medications (migraine specific and general) used for the acute and preventive treatment of headache.
- **Analysis:** Summary statistics (N,%) are presented for demographics, headache characteristics and constipation. For constipation outcomes, odds ratios with 95% confidence intervals (CIs) adjusted for age and sex are presented.

Results

- Survey 2 response rate= 1,297/2,558 (50.7%). Of 1,156 patients who provided all necessary data, there were 807 migraine patients and 349 non-migraine headache control patients.
- Compared to headache controls, migraine patients were more likely to be female (81% vs 61%), younger than 44 years of age (53% vs 39%), and on headache medications. **Table 1**
- Respondents with migraine were more likely than headache controls to meet ROME IV criteria for constipation (26% vs. 9%). **Table 2**
- Irritable bowel syndrome, functional constipation, and opioid-induced constipation were also more likely in migraine patients than in headache controls. **Table 2** (C1, C2, C6)
- In adjusted models, the odds of constipation were three times higher for migraine patients than headache controls. **Table 3** The odds of the other GI conditions were also greater for migraine patients than headache controls. (IBS – 4.2 times; opioid-induced constipation – 3.8 times; functional constipation – 2.6 times).

Table 1. Demographics & Headache Features

	Migraine (n=807)	Headache Control (n=349)
Sex		
Female	654 (81.0%)	211 (60.5%)
Male	146 (18.1%)	132 (37.8%)
Not reported	7 (0.9%)	6 (1.7%)
Age		
18-29	133 (16.5%)	56 (16.1%)
30-44	291 (36.1%)	80 (22.9%)
45-54	123 (15.2%)	60 (17.2%)
55-64	104 (12.9%)	48 (13.8%)
≥65	55 (6.8%)	67 (19.2%)
Not Reported	101 (12.5%)	38 (10.9%)
HA days/past 30 days		
0-3 days	388 (48.1%)	207 (59.3%)
4-7 days	233 (28.9%)	30 (8.6%)
8-14 days	75 (9.3%)	7 (2.0%)
≥15 days	77 (9.5%)	11 (3.2%)
Not reported	34 (4.2%)	94 (26.9%)
Ethnicity/Race		
Hispanic	84 (10.4%)	17 (4.9%)
Asian	72 (8.9%)	59 (16.9%)
Black or African American	17 (2.1%)	6 (1.7%)
White	503 (62.3%)	210 (60.2%)
Other	131 (16.2%)	57 (16.3%)
Medication use		
Any Preventive (Pills/Injections)	267 (33.1%)	31 (8.9%)
Any Acute (Pills/Injections/IV)	756 (93.7%)	233 (66.8%)

Table 2. Rates of Constipation Overall and by Subtypes

	Migraine (n=807)	Headache Control (n=349)
Constipation (≥2 out of 6 criteria)	213 (26.4%)	31 (8.9%)
ROME IV C1: Irritable Bowel Syndrome	92 (11.4%)	10 (2.9%)
ROME IV C2: Functional Constipation	96 (11.9%)	13 (3.7%)
ROME IV C6: Opioid-induced Constipation	10 (1.2%)	2 (0.6%)

Table 3. Odds of constipation or subtype for migraine versus control, adjusted for age and sex

	Odds Ratio	95% CI
Constipation (≥2 out of 6 criteria)	3.2	2.1-4.9
ROME IV C1: Irritable Bowel Syndrome	4.2	2.1-8.5
ROME IV C2: Functional Constipation	2.6	1.4-4.8
ROME IV C6: Opioid-induced Constipation	3.8	0.5-30.3

Limitations

This study did not evaluate all specific medications that might affect constipation including acute and preventive medications for migraine, medications for other reasons and other migraine comorbidities. In addition, there may be responder bias.

Conclusions

- Constipation overall and by subtypes was more common in patients with migraine than in non-migraine headache control respondents.
- Acute headache medication usage was high in both migraine and headache control patients.
- Future work should explore constipation management, concomitant medication use, additional comorbidities and outcomes.

References

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Funding

This work was supported by a contract funded by Amgen Inc., Thousand Oaks, CA. Erenumab is co-developed by Amgen and Novartis.