Defining the Border-Zone Between Episodic Migraine and Chronic Migraine: Psychiatric Comorbidities and Chronic Pain in the US Population

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BACKGROUND

Although Chronic Migraine (CM) is defined by headaches on 15 or more days per month among individuals with ICHD-2 defined migraine, the clinical and biological borders between Episodic Migraine (EM) and CM are uncertain. One important aspect of identifying subgroups and specifying case definitions is comorbidities.

OBJECTIVES

To compare rates of psychiatric comorbidities and chronic pain in three frequency-defined groups with migraine: Low Frequency EM (LFEM; 0-9 days/month), High Frequency EM (HFEM;10-14 days/month) and CM (≥15 days/month) in a large representative sample of the US population.

METHODS

- The American Migraine Prevalence and Prevention (AMPP) Study is a longitudinal, US-population-based study of individuals with self-identified "severe" headache. A screening survey was sent to 120,000 US households in 2004. Follow-up surveys were mailed to 24,000 respondents with "severe" headache on an annual basis from 2005-2009.
- Questionnaires included headache symptomology to allow for diagnosis according to ICHD-2 criteria and headache frequency over the preceding three months. Additionally, respondents were asked to report previous diagnosis by a medical professional for a range of medical and psychiatric conditions among other data.
- Depression was assessed using the Patient Health Questionnaire (PHQ-9). Anxiety, bipolar disorder, and chronic pain were assessed by self-report of previous diagnosis by a medical professional.
- Odds ratios (ORs) and 95% Wald Confidence Intervals (CIs) adjusted for age, sex and income were calculated comparing groups.

RESULTS

- Of 18,500 eligible study respondents to the 2005 AMPP survey, 10,609 met criteria for LFEM, 640 for HFEM and 655 for CM.
- Contrasting the three groups cross-sectionally, the proportion of anxiety increased from 18.8% among those with LFEM to 30.2% of those with CM (Figure 1). There were statistically significant differences between the CM group compared to LFEM (OR 1.80, 95% CI 1.51, 2.15; p≤0.001), but rates were not statistically different between the CM and HFEM groups (Table 1).
- The same pattern was true for bipolar disorder (CM vs. LFEM: OR=1.56, 95% CI 1.51, 2.15; p≤0.001), and depression (CM vs. LFEM: OR=2.00, 95% CI 1.67, 2.49; p≤0.001). Rates were statistically different between those with CM and LFEM, but not between CM and HFEM.
- Rates of chronic pain also increased across headache frequency groups (LFEM=15.1%, HFEM=23.4%, CM=31.5%) and were significantly different among all three groups (Table 1).

CONCLUSIONS

Individuals with CM have higher rates of psychiatric comorbidities and chronic pain than persons with EM. However, when EM was divided into two frequency groups, those with CM and HFEM did not differ significantly in rates of psychiatric comorbidities; they differed in the odds of chronic pain. These results suggest that CM and HFEM are similar in terms of rate of psychiatric comorbidities. This may reflect a shared underlying biologic predisposition to conditions and may reflect a shared genotype.

Figure 1. Rates of Psychiatric Comorbidities by Migraine Frequency Groups
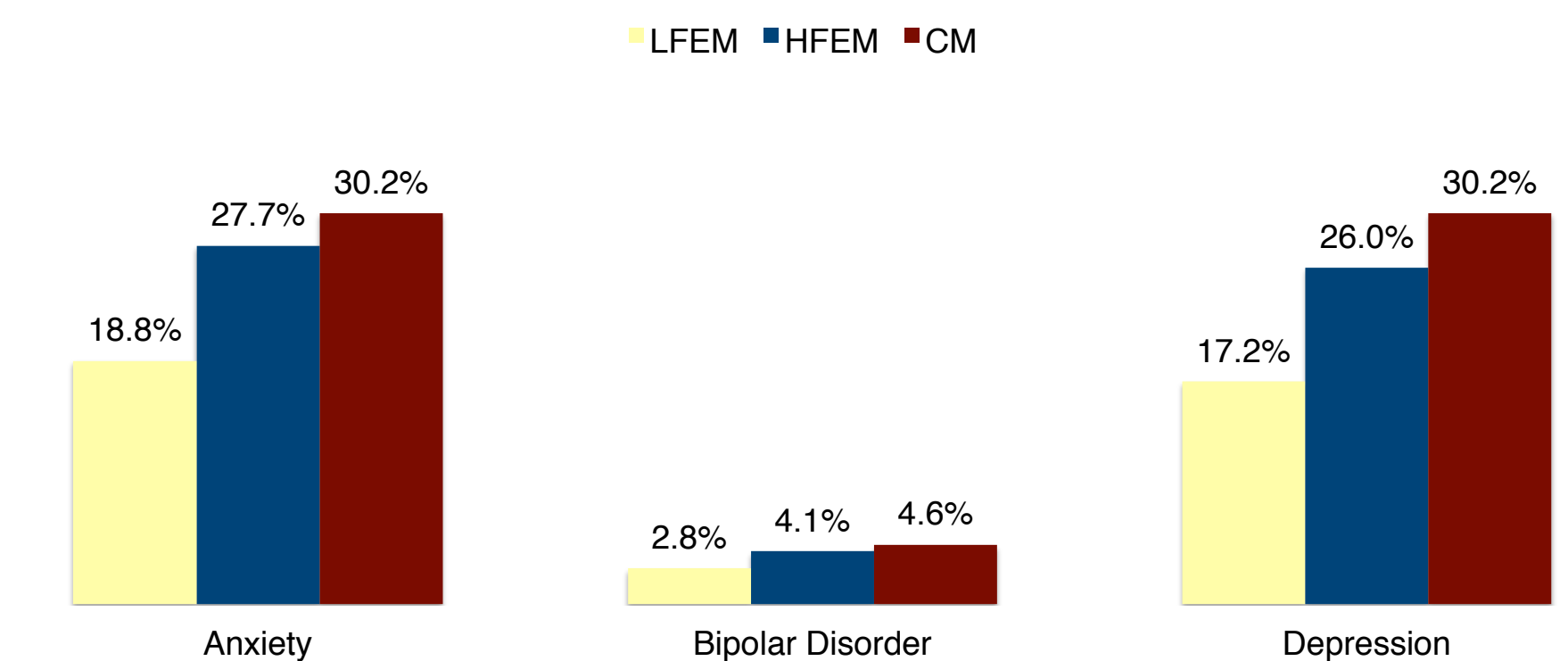
Table 1. Rates of Psychiatric and Chronic Pain Comorbidities by Migraine Frequency Groups and Statistical Comparisons Between Groups

Condition	LFEM N (%)	HFEM N (%)	CM N (%)	HFEM vs LFEM Odds Ratio (95% CI), p value	CM vs LFEM Odds Ratio (95% CI), p value	CM vs HFEM Odds Ratio (95% CI), p value
Anxiety	1,993 (18.8%)	177 (27.7%)	198 (30.2%)	1.59 (1.33,1.91) p≤0.001	1.80 (1.51,2.15) p≤0.001	1.13 (0.88,1.44) NS
Bipolar Disorder	298 (2.8%)	26 (4.1%)	30 (4.6%)	1.23 (0.99,1.54) NS	1.56 (1.06,2.31) p=0.02	1.25 (0.93,1.67) NS
Depression	1,767 (17.2%)	162 (26.0%)	192 (30.2%)	1.62 (1.34,1.96) p≤0.001	2.00 (1.67,2.40) p≤0.001	1.23 (0.96,1.59) NS
Chronic Pain	1,599 (15.1%)	150 (23.4%)	206 (31.5%)	1.69 (1.39,2.05) p≤0.001	2.49 (2.08,2.97) p≤0.001	1.47 (1.14,1.89) p≤0.003

NS= Non-Significant; ORs and 95% wald confidence intervals adjusted for age, sex and annual household income; Depression defined by Patient Health Questionnaire-9 (PHQ-9) depression screener; Anxiety, Bipolar Disorder, and Chronic Pain identified by respondent self-report of receiving a diagnosis by a medical professional.