Sleep Disturbance and Environmental Reactivity as Potential Mechanisms for Comorbidity of Mood and Anxiety Disorders with Migraine
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Objective: We examined the inter-relationships between subtypes of migraine, mood and anxiety disorders and investigate the core phenomena that could underlie this association including sleep patterns, subjective ratings of pain, stress reactivity and emotional regulation using mobile assessments.

Background: There is compelling evidence for an association between migraine with mood and anxiety disorders, but limited research exists on potential mechanisms for it.

Design/Methods: Sample: 347 probands and 631 of their directly interviewed first-degree relatives. Structured diagnostic interviews utilized ICHD-II criteria for headache subtypes and DSM-IV criteria for mental disorders. Ecological Momentary Sampling (EMA) was assessed four times per day over a two-week period in a subset of 289 participants. We evaluated sleep variables, patterns of mood and anxiety, self-reported pain and reactivity to stressful events. Mixed effects models were used to investigate the familial aggregation and co-aggregation of headache with subtypes of mood and anxiety disorders, and multi-level models that incorporated granger causality were used to analyze the EMA domains and their directionality.

Results: We confirmed the well-established familial aggregation of migraine (OR=2.12 (1.14-3.18), with some evidence for specificity of migraine with and without aura. Strong associations emerged between the Bipolar II and MDD, and all subtypes of anxiety disorders with migraine in relatives (OR=3.05(1.52-6.11) and OR=1.63(1.1-2.41), respectively). Sleep disturbances and environmental reactivity were significantly different from controls in people with migraine and those with mood/anxiety disorders. Whereas sleep patterns did not differ in youth with migraine, environmental reactivity was observed across the developmental life span.

Conclusions: Although mood/anxiety disorders and migraine are strongly familial, their association is likely not familial. Therefore, mood and anxiety disorders are either a precursor or consequence of migraine, rather than comprising manifestations of common etiologic factors underlying migraine and mood disorders. Real time assessments suggest that sleep and stress reactivity may potentially mediate their association.