

A Comparison of Migraine Symptomatology in MDD Patients and Controls

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Introduction

Migraine shows a strong comorbidity with a variety of psychiatric disorders, and especially depression. The prevalence of migraine in depressed individuals is substantially higher than in non-depressed individuals. It is unclear whether migraine with comorbid depression is biologically different from 'pure' migraine.

In this study we examine whether migraine symptomatology is the same in individuals with and without depression. This is done by comparing the symptom profiles of a population-based sample and a sample of patients with major depressive disorder (MDD).

Sample

MDD cases were selected from the Netherlands Study of Depression and Anxiety (NESDA; N=1610) and the Netherlands Twin Registry (N=180). Cases of lifetime MDD were diagnosed with a CIDI interview. 551 (30%) of the cases were male, and 1265 (70%) were female. The mean age was 42.6 (± 12.4).

The population-based control sample (N=3867) was selected from the Netherlands Twin Registry. One individual was selected at random from each family. The control sample had a mean age of 40.8 (± 14.3) and consisted of 1460 (38%) males and 2407 (62%) females. This sample was unselected with regard to MDD status.

Methods

Migraine data were collected by means of a questionnaire that included questions on headache symptoms listed in the diagnostic criteria for migraine (*International Headache Society, 2004*)

Diagnostic Criteria For Migraine Without Aura

- At least 5 attacks fulfilling criteria B-D
- Headache attacks lasting 4-72 hours (untreated or unsuccessfully treated)
- Headache has at least two of the following characteristics:
 - unilateral location
 - pulsating quality
 - moderate or severe pain intensity
 - aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs)
- During headache at least one of the following:
 - nausea and/or vomiting
 - photophobia and phonophobia
- Not attributed to another disorder

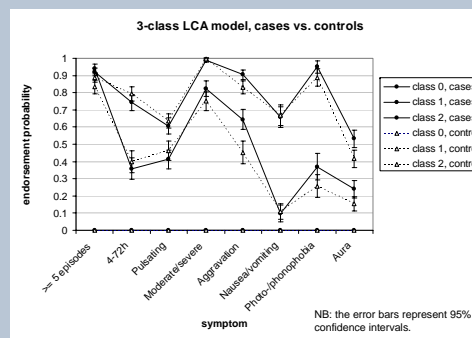
The symptom data were analysed with Latent Class Analysis (LCA). LCA is a statistical method that groups individuals based on their pattern of responses (in this case, reported symptoms).

The parameters estimated in a latent class model are: a) the prevalence of each class, and b) the probability, given class membership, that an individual endorses an item (i.e., reports a symptom). Based on these parameters the most likely class membership of each individual can be estimated.

This method enabled us to empirically classify individuals, and then compare the symptom profiles of cases and controls within class.

Results (1)

A 3-class model provided the best fit to the data. The figure below shows the symptom profiles for cases and controls separately.



Class 0 (all probabilities zero) are the individuals screening negative for headaches. These did not answer further headache questions. Class 1 is a group of individuals with mild headaches that include some migrainous features. Class 2 describes a severe type of migrainous headache that typically includes the majority of migraine symptoms.

Equating the symptom profiles for depressed and non-depressed subjects resulted in a significantly worse model fit ($p=.01$ for class 2, $p<.001$ for class 3). The depressed cohort reported a somewhat higher prevalence of 'aggravation by physical activity' and 'visual aura'. However, globally the pattern is very similar for both groups, with no clear indication of phenotypic differences in migraine between MDD cases and controls.

Results (2)

Phenotypic similarity does not imply similar prevalences. As expected, class sizes differed substantially between the two samples. The prevalence of class 2 migrainous headaches was substantially higher in the depressed sample (6% vs. 16% in males, 25% vs. 41% in females).

Discussion

Globally, the symptom profiles of depressed and non-depressed subjects are very similar. There are a few small but significant differences, especially in the prevalence of 'aggravation by physical activity' and 'visual aura'. These might reflect real differences in prevalence, but alternative explanations are possible. For instance, depressed subjects might be more likely to report 'aggravation' as a result of their mood disorder.

Conclusion

Although subtle differences were found between the symptom patterns of MDD cases and controls, the overall symptom profiles are very similar, suggesting that - at least at the phenotypic level - both groups are affected by the same headache condition.