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Migraine Headache and Acid Peptic Diseases in Children

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Abstract

Background: Although there are some studies on correlation between migraine headache and GI symptoms, they did not significantly support the correlation between migraine headache and acid peptic diseases. This case control study aimed to find such a correlation.

Methods: There were 70 patients (5-15 years old) who had endoscopic documented acid peptic diseases. The frequency of migraine headache in this group and also in a group consisting of a sample of normal population (300 individuals) without any GI problem in the past year was determined by a questionnaire.

Results: The frequency of migraine headache was determined in each kind of acid peptic disease in the patients, being 92.9%, 68.6%, 24.3%, 4.3%, and 4.3% among patients with gastritis, esophagitis, doudenitis, gastric ulcer, and duodenal ulcer, respectively. The frequencies of migraine headache among the normal population and acid peptic disease group were 11.3% and 22.9%, respectively. The difference was found to be statistically significant.

Conclusions: Our findings showed a significant correlation between migraine headache and acid peptic diseases, especially esophagitis and gastritis. This result accords with that in some of the previous studies.

Keywords: Acid peptic diseases; Migraine headache; Children

Introduction

Migraine is a common primary headache disorder and a significant health problem due to its high frequency and accompanying morbidity which leads to disability and limitation in performance. It puts a huge burden both on the individual and the society, thus resulting in lack of productivity, limitation of activity, and impairment of the quality of life.[1]

Although migraine is a remarkably common problem, occurring in up to 15% of the populations in the western society,[2] many population-based studies have confirmed that the true prevalence of migraine is underestimated. This is mainly due to the fact that associated symptoms, which are a mainstay of the diagnosis, remain both unreported to and unrecognized by physicians.[3] Migraine headaches are frequently reported by patients with GI symptoms[4-6] and various GI conditions have been linked with it although it is uncertain if these symptoms present manifestations of the migraine attacks.[7]

Comorbidity between migraine and other GI disorders have been reported among the patients with migranie.[8] In the absence of a high index of suspicion for migraine, such GI symptoms may lead patients to consult a gastroenterologist or, in an open-access setting, to be referred for upper GI endoscopy.[9] It is not clear whether association of migraine with upper GI diseases is due to the common pathogenesis or due to their effect on each other. This study was conducted to evaluate the prevalence of migraine among outpatients with symptoms of acid peptic diseases.

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Materials and Methods

In a case-control study from 2002 to 2005, all 5-15

year-old children referring to Mottahari Clinic, affiliated to Shiraz University of Medical Sciences, due to upper GI diseases based on ROME II criteria were selected for endoscopic examination. Those with mucosal inflammations and peptic ulcers were considered as case group (70 subjects) and through a questionnaire of International Headache Society (IHS) their migraine pain were recorded. The control group consisted of 300 school children without any upper GI symptoms (ROME II criteria) during the previous year. The entire control group completed the same questionnaire. Sex distribution was equal in the control group.

The questionnaire consisted of questions on esophagitis, gastritis, doudenitis, gastric and duodenal ulcers, and *Helicobacter pylori* infection, confirmed by endoscopy and urease test, respectively. The association of each symptom with migraine headache and prevalence of *H. pylori* infection in subjects with acid peptic diseases and migraine was studied. The results were statistically analyzed by SPSS software (version 11.5, Chicago, IL, USA), using Pearson chi-square and t test. A p value less than 0.05 was considered significant.

Results

Out of the 70 cases, 58% were male and 42% were female with a mean age of 10.3 years (ranging from 5-15 years). Based on IHS criteria, sixteen patients (22.9%) in the test group and 34 (11.3%) in the control group suffered from migraine headache.

92.9% (n=65), 68.6% (n=48), 24.3% (n=17), 4.3% (n=3), and 4.3% (n=3) of the cases had gastritis, esophagitis, doudenitis, gastric ulcer, and duodenal ulcer, respectively. No significant difference wan observed between gender and GI symptoms. In the case group, 15 subjects with gastritis and 11 with esophagitis suffered from migraine based on IHS criteria with a statistically significant correlation. (p=0.021) Due to inadequate number of migraine patients with gastric ulcer (n=2) and duodenal ulcer (n=1), no analysis was undertaken.

Among 17 subjects with duodenitis, 35.3% (n=6) had migraine headache. 27 out of the 70 cases were positive for urease test while 3 of them had migraine based on IHS criteria. The correlation between absence of migraine headache (n=54) and presence of H. pylori infection (n=24) was found to be statistically significant. (p=0.034)

Discussion

Migraine as a chronic disease causes GI symptoms, resulting in referral of patients to gastroenterology clinics. There are several reports on the correlation between these symptoms and migraine.[10]

Our results showed that the prevalence of migraine headache among patients with acid peptic diseases was more than that in those without such diseases while the correlation between migraine and esophagitis and gastritis was statistically significant.

Due to the small sample size of the patients with gastric and duodenal ulcers, no statistical analysis was undertaken. Some studies showed a higher prevalence of gastritis in the antrum and body of the stomach and also duodenitis in patients suffering from migraine. Inflammatory cell infiltration in the antrum and body of stomach and in the duodenum was more than that in those without any migraine headaches. The direct correlation between migraine and esophagitis points to the common etiology between these two diseases so that there is a need to clarify the pathogenesis of both diseases.

Vasoactive intestinal peptide and neurotransmitters were presented as the major pathophysiology for migraine, affecting neuronal receptors of the vessels resulting into migraine.[11-13] There are several reports pointing to the factors and material stimulating the neuronal and vascular impulses, such as the specific diet. Vasoactive intestinal peptide (VIP) can influence the vessels and lower esophageal sphincter, causing symptoms such as dyspepsia. Vasoactive amines (i.e. VIP) affected both the vessels and lower esophageal sphincter which was in accordance with our findings, showing a significant correlation between migraine and esophagitis and gastritis. In this study, the correlation between *H. pylori* infection and peptic ulcers with migraine headache was not significant. Our results showed that in migraine patients, the prevalence of *H. pylori* infection was less than that in those without migraine. This can be due to the effects of vasoactive amines, leading to inflammation and migraine headache but further investigation is needed to clarify this correlation.

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References

1 Demirkirkan MK, Llidokuz HE, Boluk A. Prevalence and clinical characteristics of migraine in University students in Turkey. *Tohoku J Exp Med* 2006;**208**:87-92. [16340178] [doi:10.1620/tjem.208.87]

2 Stewart WF, Lipton RB, Celentano DD, Reed ML. Prevalence of migraine headache in the United States. Relation to age, income, race, and other sociodemographic factors. *JAMA* 1992;**267**:64-9. [1727198] [doi:10.1001/jama.267.1.64]

3 Silberstein SD. Migrain symptoms:result of a survey of self - reported migraineurs. *Headache* 1995;**35**:387-96. [7672955] [doi:10.1111/j.1526-4610.1995.hed3507387.x]

4 Gones R, Lydeard S. Irritable bowel syndrome in the general population. *BMJ* 1992;**304**:87-90. [1737146]

5 HoltmannG, Goebell H, Holtmann M, Talley NJ. Dyspepsia in healthy blood donors and association with helicobacter pylori. *DIG Dis Sci* 1994;**39**:1090-8. [8174422] [doi:10.1007/BF02087563]

6 Sloth H, Jorgensen LS. Predictors for the course of chronic non-organic upper abdominal pain. *Scand J Gastroenterol* 1989;**24**:440-4. [2781239] [doi:10.3109/00365528909093072]

7 Kurth T, Holtmann G, Neufang-Hüber J, Gerken G, Diener HC. Prevalence of 46 unexplained upper abdominal symptoms in patients with migraine. *Cephalalgia* 2006;**26**:506-10. [16674758] [doi:10.1111/j.1468-2982.2005.01076.x]

8 Chen TC, Leviton A, Edelstein S, Ellenberg JH. Migraine and other diseases in women of productive age. The influence of smoking on observed association. *Arch Neurol* 1987;**44**:1024-8. [3632373]

9 Meucci G, Radaelli F, Prada A, Bortoli A, Crotta S, Cerrato C, Minoli G. Increased prevalence of migraine in patients with uninvestigated dyspepsia reffered for open-access upper gastrointestinal endoscopy. *Endoscopy* 2005;**37**:622-5. [16010605] [doi:10.1055/s-2005-870251]

10 Talley NJ. Diagnosing an irritable bowel: does sex matter? *Gastroenterology* 1991;**100**:834-7. [1993508]

11 Peroutka SJ. Neurogenig inflammation and migraine: implications for therapeutics. *Mol Interv* 2005;**5**:304-11. [16249526] [doi:10.1124/mi.5.5.10]

12 Aurora SK, Kori SH, Barrodale P, McDonald SA, Haseley D. Gastric stasis in migraine: more than just a paroxysmal abnormality during a migraine attack. *Headache* 2006;**46**:57-63. [16412152] [doi:10.1111/j.1526-4610.2006.00311.x]

13 **13** Hauge T, Persson J, Sjölund K. Neuropeptides in the duodenal mucosa of chronic alcoholic heavy drinkers. *Alcohol Alcohol* 2001;**36**:213-8. [11373257] [doi:10.1093/alcalc/36.3.213]