Association between migraine and endometriosis: is there a relationship with endometriosis phenotypes?

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Introduction: Endometriosis and migraine are two benign, chronic, disabling conditions that share many similarities in terms of their clinical manifestations, epidemiology, with high prevalence in women of childbearing age, and pathogenesis. Several studies have shown a significant association between these two pathologies, but no study to date has explored the relationship between migraine and endometriosis phenotypes.

Materials, patients and methods: This research was a case-control study using data prospectively collected from non-pregnant women aged 18 to 42 years who had undergone surgery for symptomatic benign gynecological conditions between January 2013 and December 2015. For each woman, data were collected by face-to-face interviews conducted by the surgeon in the month preceding the surgery. All of the women completed a self-administered headache questionnaire according to the International Headache Society (IHS) classification to distinguish migraine from non-migrainous headache. Surgery was performed on 314 consecutive French women. The cases (n = 182) comprised women with histologically proven endometriosis and control women (n = 132) who did not have endometriosis. The occurrence of migraine was studied in both of these groups and according to surgical endometriosis phenotypes. The statistical analysis was conducted using logistic regression models (single and polytomous).

Results: The prevalence of migraine in women with histologically proven endometriosis was significantly higher compared with women who did not have endometriosis (35.2% versus 17.4%, p = 0.003). The risk of endometriosis was significantly higher in migrainous women (OR = 2.39; 95% CI = 1.30-4.40). When we take into account endometriosis phenotypes, the most significant risk occurred in the subgroup of women with endometrioma (OR=3.02; 95%CI = 1.41-6.48). In the group of women with endometriosis, the intensity of chronic non-cyclical pelvic pain was significantly greater for those with migraine (VAS = 3.6 ± 2.9) compared with the women without headache (VAS = 2.3 ± 2.8, p = 0.0065). The main limitation was a possible selection bias due to the specificity of the study design, as it only included women who had undergone surgery at a referral center that specializes in endometriosis surgery. Therefore, the women referred to our center may have suffered from particularly severe forms of endometriosis that are frequently associated with a high level of pain. This referral bias in women with severe and painful endometriosis may be a source of overestimation of the link with severe headache such as migraine.

Conclusion: This study suggests common mechanisms between endometriosis and migraine. In migrainous women, it is necessary to ask questions about associated co-morbidities to improve the delay in the diagnosis of endometriosis. Further epidemiological studies, including a larger number of patients, and fundamental research are needed to confirm these results in order to optimize the medical and therapeutic care of these women.

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