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Case Report

History of Migraine and Increased Risk of Preeclampsia

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Abstract

A 27 year old primigravida with a history of chronic severe migraine with aura, admitted to hospital at 34 weeks' gestation for a severe migraine episode not responsive to treatment, suddenly developed an extremely severe, life-threatening form of preeclampsia complicated by HELLP (Haemolysis, Elevated Liver enzymes and Low Platelet count) syndrome and acute fetal damage. The patient experienced relief of migraine during the first trimester of pregnancy, and reappearance and progressive worsening of the episodes in the second half of pregnancy. It is suggested that the disappearance of recurrent migraine episodes is a protective factor against the risk of developing pregnancy complications, particularly preeclampsia, while the lack of improvement seems to increase the risk of developing preeclampsia. Pregnant patients with migraine should be included in high-risk protocols of care.

Keywords: Migraine; Pregnancy; Preeclampsia

Case Presentation

A 27 year old primigravida Caucasian woman presented at 34 weeks' gestation with a 3-day history of extremely severe migraine associated with photophobia, intense nausea and vomiting, facial and upper arm numbness and temporal visual field defect. Since the age of 18, the woman had been suffering from chronic severe migraine with aura, with three to four recurrent episodes per month and each episode sometimes lasted up to 3 days and was often related to her menstrual cycle. At age 20 she was administered triptans, which were withdrawn at the beginning of her pregnancy. During pregnancy she was always normotensive and was not using any drugs on a regular basis apart from vitamin supplements. Migraine episodes completely disappeared during the first trimester of pregnancy, but they reappeared in the second half of pregnancy. The migraine episodes kept worsening over time, and required treatment with triptans which brought some relief. In the third trimester the episodes became very frequent and severe, and eventually led to hospital admission. On the day of admission, a treatment with triptans and opioids was started, without improvement of pain. The patient was normotensive, and laboratory tests were normal. On the third day, the blood pressure suddenly increased to 160/110 mmHg, associated with general oedema and severe oliguria (urine output 20 ml/h). Proteinuria was also present (urine protein/creatinine ratio 0.93). Laboratory tests showed anemia (hemoglobin 8.4 g/dl; hematocrit 23%), thrombocytopenia (platelet count $91x10^3$/ml), and signs of hepatic damage (AST 230 UI/l, ALT 145 UI/l) and haemolysis (lactate dehydrogenase 1520 UI/l, undetectable haptoglobin), leading to the diagnosis of HELLP (Haemolysis, Elevated Liver enzymes and Low Platelet count), a severe, life-threatening complication of preeclampsia.

Antihypertensive treatment was started with oral labetalol and magnesium sulphate intravenous infusion (to prevent eclamptic seizures), and intravenous dexamethasone was administered with the aim of increasing platelet count. During maternal stabilization, an abnormal fetal heart rate pattern was observed (late decelerations), which required immediate caesarean delivery.

On the second day after delivery, the migraine began to improve, and on the third day blood tests showed a trend in improvement of haemolysis indexes, platelet count and liver enzymes. Blood pressure was 150/90 mmHg. The patients were discharged from the hospital 12 days after delivery.

Discussion

Migraine represents one of the most common neurological disorders in adult women [1,2], with a female predominance and a peak incidence age in the second and third decades of life [3,4]. This age range corresponds to the childbearing years for women, thus the association of headache and pregnancy is quite frequent. Preeclampsia complicates about 3% of all pregnancies and is a leading cause of maternal and perinatal morbidity and mortality worldwide [5]. A correlation between migraine and an increased risk of preeclampsia has been suggested [5,6]. Particularly, migraine and preeclampsia share common pathogenetic mechanisms, such as endothelial dysfunction, activation of inflammatory response, and enhanced platelet function and clotting.

Migraine increases almost threefold the odds of developing preeclampsia, and may be a risk factor comparable to other identified risk factors (older age, obesity and a family history of preeclampsia [7].

Migraine is usually reported to improve or disappear during pregnancy. Approximately 70% of women with migraine report improvement, and this occur most often in women who have menstrual migraine. The improvement occurs early, usually in the first trimester [8-11]. It is suggested that the disappearance of recurrent migraine episodes is a protective factor against the risk of developing pregnancy complications, particularly preeclampsia. On the other hand, some authors report persistence or even worsening of migraine episodes in 4–8% of pregnant women [9-11]. We have previously observed that among migraineurs those whose headache did not improve during pregnancy were at a higher risk of developing preeclampsia than that experiencing migraine relief [5]. To this regard, the case reported is significant and paradigmatic. The patient

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experienced the reappearance and progressive worsening of the migraine episodes in the second half of pregnancy, and was admitted to hospital because of a severe episode not responsive to treatment. She was normotensive at admission, but within a few days developed an extremely severe form of preeclampsia, complicated by HELLP syndrome and acute fetal damage.

In conclusion, it is possible that in patients who do not experience relief of migraine during pregnancy, the lack of maternal metabolic and vascular adaptations to pregnancy, which account for persistence of migraine, are responsible for the increased risk of developing preeclampsia. We suggest including pregnant patients with migraine in high-risk protocols of care.

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