

## Comment on the migraine and adverse pregnancy outcomes in the nuMoM2b study: thrombosis and placenta insufficiency, biological link with migraine?

**TO THE EDITORS:** In the recent Nulliparous Pregnancy Outcomes Study: Monitoring Mothers-to-be,<sup>1</sup> the authors reported a significant increase in adverse pregnancy outcomes related to hypertensive disorders in women with migraine. These interesting results pose a challenge in understanding the underlying pathway by which this could take place and the possible preventive treatment.

One mechanism could be thrombosis events leading to placental insufficiency as follows: (1) migraine is a known risk factor for vascular and venous events when associated with hormonal environments, such as those caused by contraceptives, (2) the risk of venous thrombosis development could be elevated, specifically in patients diagnosed with migraine and aura,<sup>2</sup> (3) some authors reported that factor V Leiden or factor II G20210A mutations were more likely among patients suffering from migraine, especially with aura.<sup>3</sup>

The pathogenesis of migraine, especially with aura, remains incompletely elucidated. However, recent research suggests that stroke during migraine could be owing to focal and transient hypoperfusion along with a blood vessel and microcirculatory disorder. Moreover, several comorbidities associated with migraine (such as thrombocytosis, Sjögren's syndrome, antiphospholipid antibodies, coagulopathy and polycythemia) are also known risk factors for hypertensive disorders related to pregnancy.<sup>4</sup>

To highlight this pathway and strengthen causality, it would have been very interesting to provide some key clinical, ultrasound, and histology features to support this hypothesis as follows: migraine subtype (aura?) uterine velocimetry at second ultrasound and placenta/birthweight ratio. The increased risk of spontaneous preterm delivery, as shown in vascular placental disorder, is also in line with this hypothesis.

If we suppose this biological pathway as causative, the effectiveness of biological thrombophilia screening in women

suffering from migraine aura seeking pregnancy and aspirin and/or low molecular weight heparins as a preventive tool remain to be determined. ■

Jeremy Boujenah, MD  
Department of Obstetrics and Gynecology  
Hopital Diaconnesse  
rue du Sergent-Bauchat  
Paris 75012, France  
Centre médical du Château  
rue Louis Besquel  
Vincennes 94300, France  
[jeremy.boujenah@gmail.com](mailto:jeremy.boujenah@gmail.com)

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