

## Non-pharmacological management of migraine during pregnancy

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**Abstract** Migrainous women note a significant improvement in their headaches during pregnancy. However, persistent or residual attacks need to be treated, keeping in mind that many drugs have potential dangerous effects on embryo and foetus. It is evident, therefore, that hygiene and behaviour measures capable of ensuring the best possible well-being (regular meals and balanced diet, restriction of alcohol and smoking, regular sleeping pattern, moderate physical exercise and relaxation) are advisable during pregnancy. Among non-pharmacological migraine prophylaxis only relaxation techniques, in particular biofeedback, and acupuncture have accumulated sufficient evidence in support of their efficacy and safety. Some vitamins and dietary supplements have been proposed: the prophylactic properties of magnesium, riboflavin and coenzyme Q10 are probably low, but their lack of severe adverse effects makes them good treatment options.

**Keywords** Acupuncture · Biofeedback ·  
Dietary supplements · Migraine prophylaxis · Pregnancy

### Introduction

Migraine is a primary neurovascular disorder that is greatly influenced by the hormone variations typical of women during their reproductive period, as well as by the very wide variety of the events that trigger its attacks. In

pregnancy, indeed, improvements are common, often to the point of complete remission of the symptomatology [1].

Persistent attacks and the pressing necessity to alleviate their intense and crippling pain, sometimes exacerbated by concomitant nausea and vomiting, demand an attentive and scrupulous understanding of the ways in which they can be treated. Many drugs have potential dangerous effects and the teratogenic period in humans lasts 6 weeks (approximately from the 31st day to the 10th week after the last menstruation) [2]. The other harmful effects of drugs include the risk of spontaneous abortion, foetal death, structural or functional foetal abnormalities, foetal growth restriction or prematurity, while their postnatal consequences may comprise behavioural abnormalities, mental retardation, and alterations of the reproductive organs [3].

It is evident, therefore, that hygiene and behaviour measures capable of ensuring the best possible well-being must be primarily employed in the management of migraine during pregnancy, when women are ideal candidates for non-pharmacological prophylaxis. However, only two treatments of this kind, relaxation techniques, in particular biofeedback (BFB), and acupuncture, have accumulated sufficient evidence in support of their efficacy and safety. Some vitamins and dietary supplements have been proposed: the prophylactic properties of magnesium, riboflavin and coenzyme Q10 are probably low, but their lack of severe adverse effects makes them good treatment options [4].

### Diet and lifestyle

Regular meals and a balanced diet are advisable during pregnancy. Fasting and its ensuing hypoglycaemia must be avoided. Recognition of dietary migraine triggers, such as chocolate, aged cheese, monosodium glutamate, may help

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to reduce headaches, though restrictive diets are not prescribed during pregnancy because they are not likely to be beneficial and limit the intake of important nutrients [5]. Restriction of alcohol, on the other hand, is always recommended for a variety of health reasons, along with the cessation of smoking [5].

Migraineurs are normally advised to observe a regular sleeping pattern. Epidemiological data have established a significant link between chronic headache and poor sleep: sleep, in fact, is effective treatment of the symptoms of migraine and adopted as such by 80% of patients in the event of an attack [6].

Moderate physical exercise is advisable during pregnancy: aerobic exercise may help to reduce migraine frequency, severity and duration [7], while a general aerobic conditioning program and basic targeted stretching exercises can be learned from self-help manuals.

Lastly, it is essential to steer clear of stressful situations. This may reduce the symptomatology in 60% of patients through the resort to relaxation techniques, such as those based on breathing [5] or the viewing of pleasing pictures, which have long been recognised as effective for the diminution of stress and its amplification of the perception of pain.

### Non-pharmacological prophylaxis

#### BFB

BFB and relaxation are effective in migraine prophylaxis [4]. Marcus et al. [8] assessed the preventive efficacy of a combination of skin-warming BFB, relaxation and physical therapy in pregnant women with migraine. Results showed a significant symptom improvement in 79% of subjects, with an overall 73% reduction in headaches. This protocol was further compared to an attention control consisting in headache education and skin-cooling BFB: both groups improved with treatment, though the first was more likely to experience significant headache relief (72.7 vs. 28.6%,  $p < 0.03$ ) [8]. Moreover, the benefits were maintained for up to 1 year postpartum in 68% of the treated patients [9].

#### Acupuncture

The recent Cochrane Collaboration review of 22 randomised controlled trials concluded that “acupuncture should be considered as a treatment option for migraine patients needing prophylactic treatment due to frequent or insufficiently controlled migraine attacks, particularly in patients refusing prophylactic drug treatment or experiencing adverse effects from such treatments [...] acupuncture is it at least as effective as, or possibly more effective than,

prophylactic drug treatment, and has fewer adverse effects” [10].

The efficacy of prophylaxis thus demonstrated in non-pregnant women can probably be achieved during pregnancy, with the added advantage that this form of treatment cannot cause any damage to the foetus. In the specific case of migraine during pregnancy, acupuncture has proved effective against the nausea and vomiting that often accompany headache, and may worsen a woman’s general state of health [11].

#### Vitamins and other supplements

Magnesium is an intracellular element involved in several cell functions. Its oral supplementation is approved for migraine prophylaxis in pregnant women by the European Federation of Neurological Societies [12].

Riboflavin (Vitamin B2) appears to reduce the symptoms of migraine, though the data are still insufficient [4].

Coenzyme Q10 supplementation may help to reduce the number of migraine crises. The literature data, however, are very few, and do not relate to the subject of migraine prophylaxis in pregnancy [13]. Even so, its use in the prevention of pre-eclampsia [14], a relatively frequent complication of pregnancy and the puerperium, that is strongly associated with a history of migraine seems to be promising.

**Conflict of interest statement** The authors declare that they have no conflict of interest related to the publication of this article.

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