

## Headache type and aspects of reproductive life in young women

Eliana Meire Melhado<sup>1</sup>, Andressa Regina Galego<sup>2</sup>, João Paulo Galdezzani<sup>2</sup>,  
Luiz Paulo de Queiroz<sup>3</sup>, Marcelo Eduardo Bigal<sup>4</sup>

<sup>1</sup>MD, PhD. Department of Neurology – Unicamp. Head of Padre Albino Integrated Colleges,  
Department of Neurology, Catanduva, São Paulo, Brazil

<sup>2</sup>College students of Padre Albino Integrated Colleges (Medical School), Catanduva, SP, Brazil

<sup>3</sup>MD, PhD. Department of Neurology – Unifesp, São Paulo, SP, Brazil

<sup>4</sup>M.D., Ph.D. Head of the Merck Investigator Studies Program, Scientific Engagements and Education  
(MISP/SEE) Office of the Chief Medical Officer – Merck North Wales, PA, USA

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### BACKGROUND

Although migraine is more common in women than in men,<sup>(1)</sup> it is yet little explored whether migraine, migraine types, or headache frequency are linked to specific events of the reproductive cycle. Since particular migraine subtypes seem to be risk factor for more serious diseases (e.g. cardiovascular disease),<sup>(2)</sup> the topic is of relevance.

### OBJECTIVES

To contrast aspects related to women's reproductive cycle (age of menarche, number of pregnancies, headaches during pregnancy, menstrual cycle, duration of period, use of contraceptive pills) as a function of headache status and of headache type.

### METHODS

Sample consisted of 422 college students. A structured questionnaire was used, allowing the classification of the headaches according to the second edition of the *International Classification for Headache Disorders*.<sup>(3)</sup> Information about reproductive life was obtained (use of contraceptive pills, age of menarche, duration of period, menstrual cycle, headaches during pregnancy, number of pregnancies).

Questionnaire consisted of 44 questions divided in 3 parts. Part 1 assessed demographics. Part 2 (22 questions) obtained detailed headache information. Part 3 (10 questions) explored temporality of headache relative to the menstrual cycle, and aspects related to fertility and reproductive life. Pregnant women and women younger than 18 or older than 45 years were excluded.

Menstrual headache was defined as headaches happening from two days before the first day of menstruation until the third day of the period. It was divided in pure (not happening in other times) or related. Findings were contrasted as a function of headache type.

The study was approved by an academically affiliated Investigation Review Board, and consent forms were obtained (Conselho de Ética em Pesquisa-FIPA, nº 38/10 de 14/6/2010).

### RESULTS

Median age of the participating sample was 22 years. Of participants, 27.9% had migraine without aura (MO), 17.8% had migraine with aura (MA), 16.9% had probable migraine (PM), 6.8% had chronic daily headaches (CDH), 3.1% had tension-type headache (TTH) and 6.6% had other headache types.

Figure 1 displays the age of menarche as a function of current headache status. Overall, median age of

menarche was 12.3 years. As seen, women with MA were significantly more likely to have had their menarche at earlier ages than women without headaches ( $p = 0.03$ ) (Figure 1).

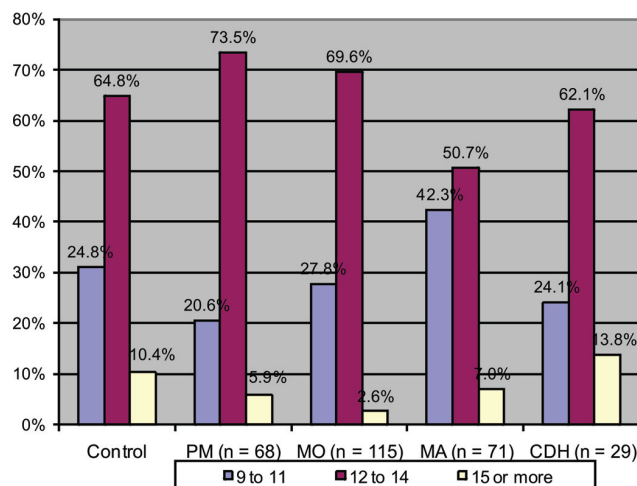


Figure 1 – Age of menarche as a function of headache type. PM = Probable migraine; MO = Migraine without aura; MA = Migraine with aura; CDH = Chronic daily headache

Women with CDH were significantly more likely than women with episodic migraine or with no headaches to have longer menstrual periods (7 days or more,  $p < 0.05$ ).

Use of hormonal contraceptive pills was strikingly similar as a function of having or not migraine headaches, having or not aura, and as a function of number of headache days per month (around 73% for all groups) (Table 1).

Table 1 - Use of contraceptives and the headache according to the second edition of the International Classification for Headache Disorders<sup>3</sup>

	No contraceptives	Contraceptives	No answer	Total
Controls	35 (27.1%)	92(71.3%)	2(1.6%)	129
MA	18(24%)	56(74.7%)	1(1.3%)	75
MO	29(24.6%)	89(75.4%)	0(0%)	118
PM	21(29.6%)	49(69%)	1(1.4%)	71
CDH	8(27.6%)	19(65.5%)	2(7%)	29

PM=Probable migraine; MO=Migraine without aura; MA=Migraine with aura; CDH=Chronic daily headache

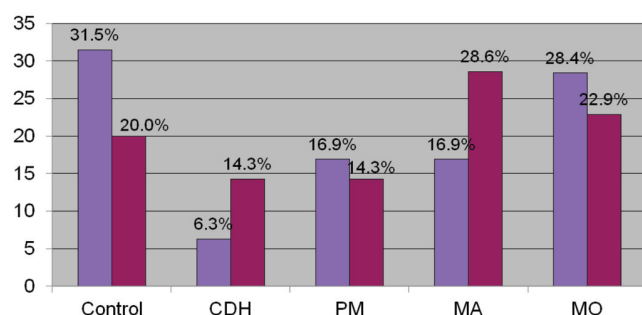


Figure 2 – Headache diagnoses (the Second Edition of the International Classification for Headache Disorders) as a function of pregnancy.

Pregnancy modified the phenotype of the headache quite considerably. The relative frequency of CDH and of MA was significantly increased during pregnancy relative to outside of pregnancy ( $p < 0.01$ ) (Figure 2).

## CONCLUSIONS

The fact that women with MA are equally likely to receive hormonal contraceptives relative to women without headaches or with other headache types raise the question whether providers are properly assessing risk of cardiovascular<sup>(2)</sup> outcomes in some women with headaches. Since we did not assess body mass index or tabagism, we can't infer on properness of care. We did however expect lower proportion of women with MA to be using hormonal medications.

Although headaches tend to improve during pregnancy<sup>(4-6)</sup> relative frequency of aura or frequent headaches is increased in pregnancy relative to outside pregnancy. Reasons for this change need to be further explored. Studies should also focus on whether these headache types are associated with complications during pregnancy.

Finally, the finding that the duration of the menstruation varied as a function of headache frequency also raises the suspicion that hormonal fluctuations not only relate to the prevalence of migraine, but also to the frequency of headaches.

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