ORIGINAL ARTICLE

Headache During Gestation: Evaluation of 1101 Women

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ABSTRACT: ***Objective:*** The purpose of this study was to evaluate the presence of headache in women with a previous history or new-onset headache during the current gestation, classify the findings, and describe the clinical characteristics and outcome of the headache. ***Methods:*** From January/1998 to June/2002 we prospectively evaluated 1101 pregnant women (12-45 years old), with a history of headache, at two prenatal clinics and an inpatient obstetric public hospital. Women were interviewed using a semi-structured questionnaire during the first, second, and third gestation trimesters and immediately after delivery. All interviews were conducted by one of the authors, using the International Headache Society Classification (IHSC-2004). ***Results:*** In 1029 women there was a history of headache prior to the current pregnancy, 36 (3.4%) women first experienced headache during this pregnancy and 40 patients experienced new types of headache. In these 76 patients with new onset headache during pregnancy, 40 had secondary headache (52.6%), 31 had primary headache (40.8%), and 5 had headache not classified elsewhere (6.6%). According to IHSC- 2004 criteria, we found migraine in 848/1029 women (82.4%), with pregestational headache. ***Conclusions:*** Most of the pregnant women presented with headache, mainly in migraine, prior to pregnancy, and most of the headaches improved or disappeared during the second and third gestation trimester. In a relatively small number of pregnant women, a new type of headache started during the gestation.

RÉSUMÉ: Céphalée pendant la grossesse : étude chez 1101 femmes. ***Objectif :*** Le but de cette étude était d'évaluer pendant une grossesse la présence de céphalée chez des femmes ayant une histoire antérieure de céphalée ou une céphalée dont le début était récent, de classifier les céphalées et de décrire les caractéristiques cliniques et l'évolution de la céphalée. ***Méthodes :*** Nous avons évalué de façon prospective 1101 femmes enceintes, âgées de 12 à 45 ans, ayant une histoire de céphalée, qui ont fréquenté deux cliniques prénatales et le service d'obstétrique d'un hôpital publique, entre janvier 1998 et juin 2002. Chaque femme devait répondre à un questionnaire semi-structuré administré lors d'une entrevue pendant le premier, le second et le troisième trimestre de la grossesse et immédiatement après l'accouchement. Toutes les entrevues ont été faites par un des auteurs et la classification de la International Headache Society (IHSC-2004) a été utilisée. ***Résultats :*** Il y avait une histoire antérieure de céphalée chez 1029 femmes avant la grossesse en cours, 36 femmes (3,4%) ont commencé à avoir des céphalées pendant la grossesse en cours et 40 patientes ont présenté un nouveau type de céphalée. Parmi ces 76 patientes, 40 avaient une céphalée secondaire (52,6%), 31 présentaient une céphalée primaire (40,8%) et 5 avaient une céphalée non classifiée (6,6%). Selon les critères de l'IHSC-2004, 848 femmes parmi les 1029 qui souffraient de céphalée avant la grossesse souffraient de migraine. ***Conclusions :*** La plupart des femmes enceintes ont présenté de la céphalée, surtout de la migraine, avant la grossesse et la plupart des céphalées se sont améliorées ou ont disparu pendant le second et le troisième trimestre. Chez un petit nombre de femmes enceintes, un nouveau type de céphalée est apparu pendant la grossesse.

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Primary headache such as tension type headache and migraine may occur during pregnancy[1,2,3] either as a recurrent symptom of a previous condition or as a new onset manifestation.

Secondary headache that mimics migraine may occur in the gestational period.[2,3] This type of headache may be caused by vasculitis, cerebral tumor, choriocarcinoma, pituitary tumor, arteriovenous malformation, sinus disorders, idiopathic intracranial hypertension, subarachnoid hemorrhage, cerebral arterial and venous episodes, pre-eclampsia and eclampsia.[3,4]

Migraine improves during gestation in 55 to 90% of patients.[5-8] Most of these women present with migraine without aura. When migraine gets worse during pregnancy it usually occurs during the first trimester.[5,6] The incidence of new onset migraine during pregnancy ranged from 10 to 13% of the patients.[7,8] Patients with new onset or headache worsening during gestation generally present with migraine with aura.[9,10] It is suggested that hormonal influence explains the cyclic

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variation of migraine during menses and stabilization during gestation.[11]

The purpose of this study was to evaluate the presence of headache in women with a prior history or new onset headache during prenatal assistance in Catanduva (a city of 111.425-inhabitants in the northwest region of São Paulo State, Brazil), classify the findings, describe clinical characteristics and register the outcome of those pregnant women with headache.

Methods

This was a prospective study conducted from January/1998 to June/2002.

The pregnant women were interviewed using a semi-structured questionnaire (Table 1) with questions about previous and ongoing pregnancy headache and gestational conditions. All interviews were conducted by one of the authors (EMM), a neurologist with expertise in headache. The first interview was done during the first trimester (maximum 16 gestational weeks). The patients were evaluated on two further occasions (in the second and third trimesters) as outpatients, by home visits, or if these were unfeasible, by telephone, to follow up the pregnancy and the headache symptoms. When there was a history of headache the year prior to gestation was investigated to get frequency and periodicity data of headache.

Patients were interviewed at three public prenatal services: Hospital Emílio Carlos Outpatient Obstetric Clinic, Prenatal Outpatient Health Center (Centro de Saúde José Perri) and Hospital Padre Albino Prenatal Inpatient Service in Catanduva, São Paulo state.

The three prenatal services are integrated and all patients in labor are referred to Hospital Padre Albino, a University Hospital. These prenatal services receive patients from Catanduva's area.

Pregnant women in their first trimester, or up to the 16th week of gestation, were invited by the neurologist to participate in a "headache survey" and, after signing an informed consent, were interviewed.

To avoid a direct impact on the natural history of headache by the interviewer, the neurologist did not offer any medical treatment to the patient but referred them to the obstetric staff or for a further neurological referral .

Inclusion criteria

Inclusion criteria were: 1. To be pregnant, agree to participate in the study and sign the informed consent form; 2. To be within the first 16 weeks of gestation at the first interview; 3. The last interview had to be between 36 and 42 gestational weeks or post-delivery (32 weeks in case of a twin pregnancy).

Exclusion criteria

Exclusion criteria were: 1. Missing the trimester follow-up visit; 2. Change of address (city or state) during the research period; 3. Dubious or conflicting information (incongruent information between different interviews); and 4. Miscarriage or death of fetus before the third trimester (with potential loss of follow-up, as opposed to the main objective of the study). Neither previous history of headache nor other medical condition was considered an exclusion criterion.

The results were obtained by interviews based on patient recall data of the baseline period and the first trimester (maximum 16 gestational weeks) and at the end of second and third gestational trimester using a semi-structured questionnaire (Table 1). Patients did not have diaries for headache evaluation. Headaches were classified according to the diagnostic criteria of the International Headache Society Classification (IHSC-2004).[12]

Headache outcome was classified according to patient information on resolution of symptoms or pain free condition; improvement when frequency and/or intensity decreased 50% or more; worse when an increase in frequency and/or intensity of pain was observed; unchanged when the modification was less than 50% either in frequency or in intensity; and indifferent when there was no modification in the headache pattern.

This study was approved by the Ethic Committee of the Faculty of Medical Science of UNICAMP.

Table 1: Semi-structured questionnaire

Patient identification:- name, age, race, schooling, occupation, origin, marital status, gestational age;

Information related to gestation:- number of previous gestations, number of prior deliveries, number of prior miscarriages, number of prior Caesarean sections, gestation age (in weeks); smoking;

Several open questions were included: -
Have you ever had headache?
When was the last time?
How many times have you had headache?
How long have you had headache?
What are the pain characteristics and location?
Do you have photophobia?
Phonophobia?
Nausea?
Vomiting?
Osmophobia?
Do your symptoms precede or accompany the headache?
Premonitory phenomena?
Do you have to slow down or interrupt daily activity during headache?
Does the pain get worse during routine physical activity?
What is the pain frequency and duration?
Is there relationship between your pain and menses?
Does it happen before, after or during the menstrual period?
How many days before, during or after does it occurs?
Does it bother your sleep?
Does sleep improve the pain?
When exactly does the headache start?
Do you have aura? If so, how is the aura?

During gestation:-
Have you had headaches during this pregnancy?
Did your headache appear only during this gestation?
If you have had headaches before this gestation, how does the pattern now compare regarding intensity and periodicity?

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Statistical analysis

To assess "Pain free + Pain improvement" during each gestational trimester, the test and confidence interval on one proportion was utilized.

The McNemar test (tabulated statistics) was used to verify headache improvement, worsening and lack of change between first and second trimester and between second and third trimester.

Results

One thousand four-hundred and ninety-four pregnant women with headache were interviewed at least once. We excluded 393 patients due to abortion, fetal death before the third trimester, unreliable information or change of address during the gestational period. We interviewed 1101 women at follow-up consultations during gestation and delivery. Seventy-four women were contacted by phone calls during second, and/or third trimester or post-delivery.

Age range: 59 (5.3%) women were between 12 and 15 years, 305 (27.7%) between 16 and 19 years, 686 (62.31%) between 20 and 34 years and 51 (4.63%) were 35 years or older. Average age was 22.95 years.

Educational level [according to Brazilian Law n°5692 - 1971 and 9394-1993 (13,14)]: 31 (2.8%) were illiterate, 715 (64.94%) had less than four years of schooling, 110 (10%) had four years, 108 (9.8%) had less than eight years, 98 (8.9%) had eight years, 18 (1.63%) had more than 8 and less than 11 years and 21 (1.9%) had 11 or more years.

Marital status: 524 (47.5%) were married, 425 (38.6%) lived with a partner, 126 (11.4%) were single, 24 (2.17%) were divorced and 2 (0.19%) were widowed.

Number of pregnancies: 457 (41.51%) women were in their first pregnancy, 304 (27.61%) were on their second, 200 (18.17%) were on their third, 87 (7.90%) were on their fourth, 30 (2.72%) were on their fifth, 14 (1.27%) were on their sixth, and 9 (0.82%) were between the seventh and tenth pregnancies.

Headache was reported in 1065/1101 women. Thirty-six women never complained of headache either previously or in the current gestational period.

From the total of 1065 pregnant women with headache, 1029 had headache before the current pregnancy and 36 first experienced headache during pregnancy. Of the 1029 women with pre-existing headache, 40 also had a new type of headache diagnosed in the current pregnancy. These two groups of patients were considered to have headache starting during pregnancy (new onset headache type), making up 76 subjects. The classification of headache in these 76 women is shown in Table 2.

Thirty-six out of 1029 women did not have detailed information about their prior history of headache.

Clinical characteristics of headache in the 993 (1029-36) women were: throbbing (pulsatile) in 617 (62.13%); dull in 15 (1.51%); pressure in 144 (14.50%); pressure-throbbing in 102 (10.27%); jabs-throbbing in 41 (4.13%); jabs in 32 (3.22%); unknown in 27 (2.72%); and other in 15 (1.51).

Headache severity was: weak-strong in 385 (38.77%) women; weak in 257 (25.88%); strong in 163 (16.41%); weak-moderate in 111 (11.18%); moderate in 32 (3.22%); weak-moderate-strong in 25 (2.52%); unknown in 13 (1.31%); and a mixture in 7 (0.70%).

Table 2: Headache classification in 76 pregnant women with new onset headache during gestation

Headaches	Total	Percentage
Migraine (1)	26	34.2
Headache attributed to arterial hypertension (10.3)	25	32.9
Headache unspecified (14.2)	5	6.6
Cervicogenic headache (11.2.1)	5	6.6
Headache attributed to rhinosinusitis (11.5)	4	5.3
Primary stabbing headache (4.1)	3	4.0
Tension-type headache (2)	2	2.6
Headache attributed to withdrawal from chronic use of other substances (cigarettes) [8.4.4]	1	1.3
Headache attributed a systemic viral infection (9.2.2)	1	1.3
Headache induced by acute substance use or exposure (8.1)	1	1.3
Headache or facial pain (teeth, mouth) [11]	1	1.3
Headache attributed systemic bacterial infection (9.2.1)	1	1.3
Headache attributed to epileptic seizure (7.6)	1	1.3
	76	

Time since the first headache (years) was: between 1-2 in 18 (1.81%) women; >2-5 in 219 (22.05%); 6-10 in 339 (34.14%); 11-15 in 202 (20.34%); 16-20 in 84 (8.46%); 21-25 in 25 (2.52%); 26-34 in 9 (0.91%); unknown in 97 (9.77%).

Headache frequency was: daily in 22 (2.22%); 3, 4, 5 X/week in 31 (3.12%); 2X/week in 34 (3.42%); weekly in 78 (7.85%); twice a month in 292 (29.41%); 3X/month in 17 (1.71%); 1X/20days in 11 (1.11%); monthly in 161 (16.21%); 1X/40days in 25 (2.52%); bimonthly in 94 (9.47%); every three months in 46 (4.63%); every four months in 23 (2.32%); every six months in 79 (7.96%); annually in 13 (1.31%); variable in 40 (4.03%); unknown in 9 (0.91%).

The duration of headache attack (hours) was: 0.04 to 0.25 in 30 (3.08%) women; 0.33 to 0.75 in 71 (7.28%) women; one hour in 80 (8.21%) women; two hours in 54 (5.54%); three hours in 26 (2.67%); four hours in 74 (7.59%); five hours in 7 (0.72%); six hours in 156 (16.00%); eight hours in 10 (1.03%); 12 hours in 166 (17.03%) women; 24 hours in 106 (10.87%) women; 48 hours in 63 (6.46%) women; 72 hours in 36 (3.69%); 96 hours in 9 (%); 120 hours in 9 (0.92%); 168 hours in 10 (1.03%); unknown in 31 (3.18%) women.

Table 3: Headache classification according to 2004-International Headache Society Criteria in 993 Pregnant Women

2004 Headache classification		Number of Patiients	Percentage
1.6.1	Probable migraine without aura	344	34.6
8.2	Medication-overuse headache	8	0.8
8.4.3	Oestrogen-withdrawal headache	9	0.9
13.11	Cold-stimulus headache	5	0.5
4.1	Primary stabbing headache	8	0.8
2.	Tension-type headache	101	10.2
1.2.1	Typical aura with migraine headache	87	8.8
1.1.and 1.2	Migraine without aura and migraine with aura	49	4.9
1.5.1	Chronic migraine	7	0.7
1.1	Migraine without aura	337	33.9
2.4	Probable tension-type headache	11	1.1
1.6.2	Probable migraine with aura	22	2.2
1.2.4	Basilar migraine	2	0.2
	Others	3	0.3
Total		993	

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The headache location was: bilateral frontal in 279 (28.1%) women; bilateral frontal-orbital in 200 (20.1%); bilateral zygomatic in 78 (7.9%); whole head in 59 (5.9%); bilateral frontal-zygomatic in 47 (4.7%); vertex in 34 (3.4%); bilateral frontal-zygomatic-ocular in 31 (3.1%); hemicrania in 31 (3.1%); bilateral zygomatic-ocular in 20 (2.0%); nuchal in 20 (2.0%); bilateral frontal-ocular-nuchal in 8 (0.8%); temporal in 7 (0.7%); bilateral frontal-parietal in 7 (0.70%); bilateral frontal-nuchal in 7 (0.7%); bilateral frontal-temporal in 5 (0.5%); and other locations in 160 (16.1%) women.

Headache classification according to the 2004-International Headache Society diagnostic criteria is shown in Table 3.

The outcome of headache patterns during pregnancy in 993 women with previous history of headache was:

First trimester: The number of pregnant women who were pain free: 243 (24.5%); had pain improvement: 268 (27%); pain free + pain improvement: 289 (29.1%); pain increase: 180 (18.1%); mixed distribution: improvement in frequency but worsening in intensity 13 (1.0%). The test and confidence interval on one proportion compares improvement + headache free with others outcomes (pain not modified and worse) within each trimester in the 993 pregnant women. The test and confidence interval on one proportion was not different in the FIRST trimester: improvement + headache free was not statistically significant in comparison to pain not modified and worse (p=0.37).

Second trimester: The number of pregnant women who were pain free: 314 (31.6%); had pain improvement: 282 (28.4%); pain free + pain improvement: 274 (27.6%); pain increase: 114 (11.5%); mixed distribution: 9 (0.9%). The test and confidence interval on one proportion was significantly different in the SECOND trimester: improvement + headache free was statistically different in comparison to pain not modified and worse in the 993 pregnant women (p< 0.0005).

Third trimester: The number of pregnant women who were pain free: 336 (33.8%); had pain improvement: 294 (29.6%); pain free + pain improvement: 263 (26.5%); pain increase: 89 (8.9%); mixed distribution: 11 (1.1%). The test and confidence interval on one proportion was significantly different than in the THIRD trimester: improvement + headache free was statistically significant in comparison to pain not modified and worse in the 993 pregnant women (p< 0.0005).

The McNemar Test

The McNemar test compares "improvement + headache free" with "improvement + headache free" in the 993 pregnant women in the second trimester in comparison to the first trimester AND in the third trimester in comparison to the second one.

Headache free + improvement increased in the second trimester in comparison to the first trimester (p=0.00005, McNemar test) and increased in the third trimester in comparison to the second one (p=0.00005, McNemar test).

The McNemar test compares "Pain not modified" with "Pain not modified" in the 993 pregnant women in the second trimester in comparison to the first trimester AND in the third trimester in comparison to the second one. "Pain not modified" decreased in the second trimester in comparison to the first trimester (p=0.038, McNemar test) and also decreased in the third trimester in relation to the second trimester (p=0.038, McNemar test).

The McNemar test compares "headache worsening" with "headache worsening" in the 993 pregnant women in the second trimester in comparison to the first trimester AND in the third trimester in comparison to the second one. Headache worsening decreased in the second trimester in comparison to the first one (Tabulated statistics – McNemar test, p< 0.00005), and

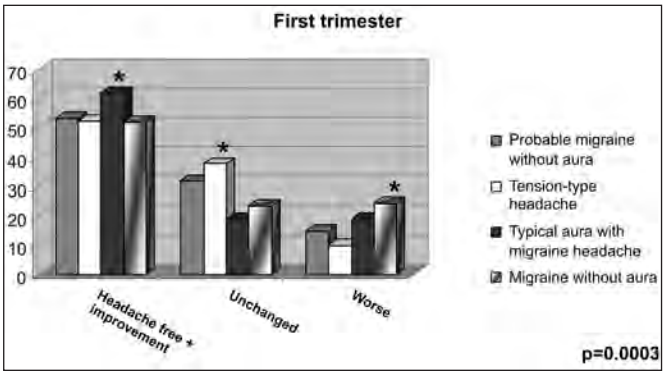

Figure 1: *Headache outcome in the first trimester. Vertical axis is the percentage of women in the different categories of follow-up. Outcomes (FREE+IMPROVEMENT; UNCHANGED, WORSE) of headache different kinds during the first trimester in the first trimester (Chi-Square test was significantly set at p< 0.05): typical aura with migraine improved more than others types of headache in this trimester; tension type headache unchanged in comparison to the others and migraine without aura had the most worsening in comparison with the other ones (p*=0.0003).*

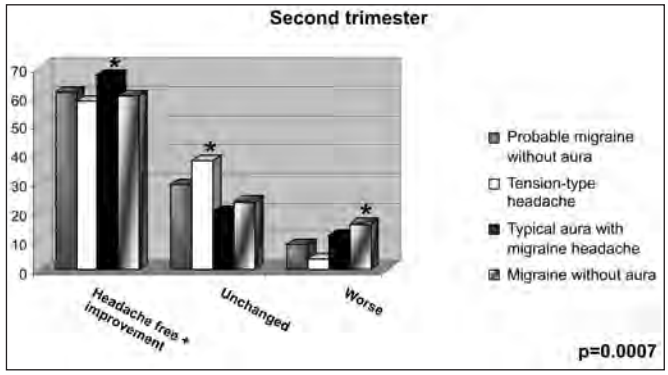

Figure 2: *Headache outcome in the second trimester. Vertical axis is the percentage of women in the different categories of follow-up. Outcomes (FREE+IMPROVEMENT; UNCHANGED, WORSE) of headache different kinds during the second trimester in the second one (Chi-Square test was significantly set at p< 0.05): typical aura with migraine had a significant improvement in relation to the other headache types during the second trimester; tension-type headache stayed unchanged compared to the other types of headache; and migraine without aura got worse during the second trimester in relation to the other headaches (* p=0.0007).*

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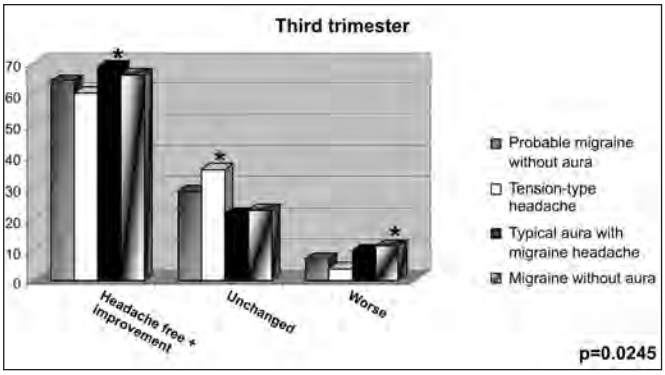

Figure 3: *Headache outcome in the third trimester. Vertical axis is the percentage of women in the different categories of follow-up. Outcomes (FREE+IMPROVEMENT; UNCHANGED, WORSE) of headache different kinds during the third trimester in the third one (Chi-Square test was significantly set at p< 0.05): typical aura with migraine had a significant improvement compared to the other headache types during the third trimester; tension-type headache stayed unchanged relative to the other types of headache; and migraine without aura got worse during the third trimester in relation to the other headaches (* p=0.025).*

decreased in the third trimester in comparison to the second one (Tabulated statistics – McNemar test, p< 0.00003).

Figures 1, 2 and 3 depict the headache outcome in the patients during the gestation trimesters according to IHSC-2004.[12] The outcome of the most frequent headache types in the 993 studied women were compared inside each gestational trimester and the results are shown in Figure 1 (first trimester), Figure 2 (second trimester), and Figure 3 (third trimester).

Statistical analysis was performed using the Chi-square test to compare the outcome of different forms of headache (according to IHSC-2004[12] in each trimester. The level of significance was set at p< 0.05).

Discussion

This nonpopulation-based screening study was conducted through personal interviews by a single neurologist specially trained in the diagnosis and treatment of headache, using a semi-structured questionnaire complemented by open questions as appropriate. This is considered the best procedure for obtaining information relevant in distinguishing the different types of headache.[15,16] The limitations of this type of study were: nonpopulation-based study, use of an open nonvalidated questionnaire, and the low socioeconomic and educational levels of women studied. The open semi-structured questionnaire used were not validated but the questions were similar to those used in the traditional clinical approach to the diagnosis of headache disorders. The low educational levels of the women studied reflect the socioeconomic condition of the public funding health care in the region. The strengths of this type of study were: it was a prospective study, a great number of women, it was not related to a headache clinic and only one interviewer, performed all the interviews.

The women included in this study used the public prenatal assistance in Catanduva, a medium sized Brazilian city. Most of these women had a low education level – less than four years of school.[13,14] The low education level is the same as that found in studies in the public medical health care in Brazil. We feel that this factor did not significantly influence our data collection and results. Patient with unreliable or dubious information were excluded.

The majority of these pregnant women had a history of headache prior to the current gestation. Our data showed headache improvement in 55% during the first gestational trimester, 60% during the second and 65% during the third trimester. Most of the available epidemiologic data comes from retrospectives studies.[6,10,17] Several studies[4-6,18-21] have shown that pregnant women show an improvement in their headache in 55 to 90% of cases,[7,8] while several women start having headaches during the gestational period.[3,4] A classical population study[17] found migraine improvement in 48% of pregnant women and worsening in 4%. Our results also confirmed the significant improvement in the second and, especially, in the third trimester. A recent prospective study[19] showed headache remission in 46.8, 83, and 87% in the first, second and third trimester respectively and this is in keeping with our findings.

Migraine is the most frequently studied type of headache during pregnancy.[5,6,10,18-20] It is interesting to note that we studied all types of headache and found the most frequent to be migraine and tension-type headache. Rasmussen[17] found that 67% of women with tension-type headache had no change in their headache, 28% improved or the pain disappeared, and 5% got worse during pregnancy. In our study, women with tension-type headache showed a great improvement, as did those with migraine. As well, tension-type headache was the only headache type that did not get worse during the three trimesters. (Figures 1, 2 and 3).

The reasons for the high prevalence of migraine could be real or the neurologist may have overestimated the patient complaints and overrated migraine. There is reference in the literature that specialists diagnose more migraine than “nonspecialists”.[22]

Most women presented with headache improvement during gestation.

When the outcome of different types of headache in each trimester was analyzed, it was verified that typical migraine with aura had the most significant improvement rate during the three gestational trimesters. Tension-type headache showed some improvement but this type was the most unchanged. Migraine without aura had some improvement but it was the type that had the most worsening during the three trimesters.

The number of patients with new onset headache starting during pregnancy was small (76/1065). Most of these women had secondary headache. It is interesting to observe that migraine was the diagnosis in the majority of women (34.2%) followed closely by headache attributed to hypertension (32.9%). One study reported nine patients with headache beginning during the gestation, and these patients were considered as having classic migraine (eight patients had migraine with aura) and common migraine (one patient had migraine without aura).[23]

The characteristic of headache most frequently found in the 993 women of our study was throbbing. Others have also found that throbbing pain is usually predominant, which is in keeping with our study.[24,25]

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The most common frequency of headache in our study was twice a month, followed by monthly. Köseoglu et al[26] found that 73.4% of patients with migraine had one to four episodes monthly, while the rest had four episodes/month, and 38.5% of migraine patients had at least 180 episodes annually.

The duration of headache attack in the 993 pregnant women was most commonly six to 24 hours. In an Italian study, the duration was between four to eight hours in 44% of migraine without auras, with 25% of migraine disorders not fulfilling the above criteria (Type 1.7).[25] Others[26] have shown that the duration of migraine treated with medication was less than four hours in 15.4% of patients, but the majority of migraines (71.3%) lasted between four and 24 hours, which is consistent with our findings. Concerning headache severity the most frequent pattern was initially weak, becoming strong, and weakening toward the end. A Norwegian study,[27] in rural areas, found that 51% of the subjects with occasional headache presented with intense or very intense headache. They showed that 46% of all headache patients (35% of men and 55% of women) were considered to have intense headache. In another study, 68% of patients, including men and women, presented with intense headache and 38% with moderately intense headache.[24] At that time, patients with migraine were studied, but no formal classification was yet available making it difficult to compare such studies due to methodological differences.

Migraine[12] was the most common headache in the group of 993 women with headache before gestation.

The second most prevalent headache was migraine without aura and the third was tension-type headache.[12]

Our findings differ from findings in the general population[7,16] and we found migraine in 80% of the studied women. It is known that migraine without aura is one of the most common headaches.[7]

To conclude, our results showed that most women who had headache during gestation had a prior history of headache. In most patients there was significant improvement or resolution of headache after the first trimester of gestation and, in a relative small number of pregnant women (76/1065), a new type of headache started during the gestation. The most frequent headache type in women with a previous history of headache, as defined by the IHS-2004, was migraine.

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