DOI: 10.1590/0004-282X20150219

CONSENSUS

Recommendations for the treatment of migraine attacks – a Brazilian consensus

Recomendações para o tratamento da crise migranosa - Um consenso brasileiro

Carlos Alberto Bordini[1], Célia Roesler[2], Deusvenir de Souza Carvalho[3], Djacir Dantas P. Macedo[4], Élcio Piovesan[5], Eliana Meire Melhado[6], Fabiola Dach[1], Fernando Kowacs[7], Hilton Mariano da Silva Júnior[8], Jano Alves de Souza[9], Jayme Antunes Maciel Jr[10], João José de Freitas de Carvalho[11,12], José Geraldo Speciali[1], Liselotte Menke Barea[7], Luiz Paulo Queiroz[13], Marcelo Cedrinho Ciciarelli[2], Marcelo Moraes Valença[14,15], Márcia Maria Ferreira Lima[16], Maurice Borges Vincent[17], Mauro Eduardo Jurno[18], Paulo Helio Monzillo[19], Pedro Ferreira Moreira Filho[8], Renan Domingues[20]

ABSTRACT

In this article, a group of experts in headache management of the Brazilian Headache Society developed through a consensus strategic measurements to treat a migraine attack in both the child and the adult. Particular emphasis was laid on the treatment of migraine in women, including at pregnancy, lactation and perimenstrual period.

Keywords: headache, migraine, treatment, pain medication, crisis.

RESUMO

Neste artigo um grupo de especialistas no tratamento de cefaleia da Sociedade Brasileira de Cefaleia através de um consenso elaborou medidas estratérgicas para tratar uma crise de migrânea tanto na criança como no adulto. Uma enfase particular foi dada no tratamento da migranea na mulher, incluindo gravidez, lactação e período perimenstrual.

Palavras-chave: cefaleia, enxaqueca, tratamento, analgésico, crise.

[1]Universidade de São Paulo, Faculdade de Medicina de Ribeirão Preto, São Paulo SP, Brazil;
[2]Sociedade Brasileira de Cefaleia, Niterói RJ, Brazil;
[3]Universidade Federal de São Paulo, Escola Paulista de Medicina, São Paulo SP, Brazil;
[4]Universidade Federal do Rio Grande do Norte, Caicó RN, Brazil;
[5]Universidade do Federal do Paraná, Curitiba PR, Brazil;
[6]Faculdade de Medicina de Catanduva, Catanduva SP, Brazil;
[7]Universidade Federal Ciências da Saúde de Porto Alegre, Porto Alegre RS, Brazil;
[8]Hospital Mário Gartti, Campinas SP, Brazil;
[9]Universidade Federal Fluminense, Niterói RJ, Brazil;
[10]Universidade Estadual de Campinas, Campinas SP, Brazil;
[11]Unichristus, Fortaleza CE, Brazil;
[12]Hospital Geral de Fortaleza, Fortaleza CE, Brazil;
[13]Universidade Federal de Santa Catarina, Florianópolis SC, Brazil;
[14]Universidade Federal de Pernambuco, Recife PE, Brazil;
[15]Hospital Esperança, Ilha do Leite PE, Brazil;
[16]Universidade Estadual Júlio de Mesquita Filho, Botucatu SP, Brazil;
[17]Universidade Federal do Rio de Janeiro, Rio de Janeiro RJ, Brazil;
[18]Faculdade de Medicina de Barbacena, Barbacena MG, Brazil;
[19]Santa Casa de São Paulo; São Paulo SP, Brazil;
[20]Universidade Federal de Minas Gerais, Belo Horizonte MG, Brazil.

Correspondence: Mauro Eduardo Jurno; Faculdade de Medicina de Barbacena, Departamento de Neurologia; Rua Fernando Laguardia, 45; 36201-118 Barbacena MG, Brasil; E-mail: jurno@uol.com.br

Conflict of interest: There is no conflict of interest to declare.

Received 03 November 2015; Accepted 27 November 2015.

The approach to the patient suffering from migraine begins by the clinical history, a crucial step, once the diagnosis is essentially clinical. Migraine diagnosis is based on the crisis characteristics and must meet the criteria provided by the International Classification of Headache Disorders - ICHD-3 beta. Additional tests are reserved when differential diagnosis of secondary headaches is required. It is important to identify comorbidities, among which emotional and anxiety disorders and high blood pressure stand out.

Treatment of a migraine attack includes pharmacological and non-pharmacological measures. All migraine crisis should be treated, regardless of their intensity.

This article aims to develop a consensus with experts from the Brazilian Headache Society and the Scientific Department of Headache of the Brazilian Academy of Neurology on how migraine attack treatment is recommended. We will add some recommendations on general and educational measures and to the treatment of comorbidities, although they are not relate specifically to the crisis of migraine, for the importance of these procedures in reducing the frequency of these episodes of pain.

GENERAL AND EDUCATIONAL MEASURES

Patients should be warned about the triggering factors of crises, so that they can identify these factors and thereby reduce the frequency of migraine episodes, at least in part. The triggering factors are multiple and individual. Each patient must check potential triggering factors for their crises with the assistance of the doctor. Among the most common are the stress, the emotions, inconsistent sleep schedules (excessive hours of sleep, sleep deprivation or sleeping outside the usual time), the suppression of meals or prolonged fasting, excessive regular use of caffeine, alcohol intake and specific foods. The use of food lists to be avoided should not be encouraged, when only foods identified as crises triggering factors should be discontinued.

Guidance on the risks of self-medication, and especially on the risk of excessive use of abortive medications is of great importance[1].

Comorbidities should always be treated and, if applicable, the patient should be referred to other professionals of specific areas.

Use of a diary for recording crises should be encouraged in order to not underestimate or overestimate the frequency, intensity and duration of migraine crises.

Patients and their families should be clarified, in an accessible language, about the neurobiological and genetic nature of the disease, the diagnosis criteria and be warned on the factors that can modify the natural course of the disease[2].

NON-PHARMACOLOGICAL MEASURES

Simple measures such as resting in a calm, airy and low light environment are known to be effective. To sleep during a crisis may also be a source of pain relief[3]. The use of cold compresses on the forehead and temples is reported by many to be useful.

There is no conclusive evidence on the use of additional treatments, such as relaxation techniques, chiropractic, transcutaneous electrical nerve stimulation (TENS), massage and cold compresses. However, coping techniques should be encouraged.

Studies on the use of acupuncture to treat migraine have shown low therapeutic efficacy[4]. There is solid evidence demonstrating the ineffectiveness of homeopathy in the treatment of a crisis.

Recently, invasive and non-invasive neurostimulation therapy to treat migraine crises, such as transcranial magnetic stimulation, occipital nerve stimulation and transcutaneous supraorbital therapy have been described. Although with positive results in some patients, there are no sufficient data to its recommendation[5].

PHARMACOLOGICAL MEASURES

Treatment of migraine crises should consider individual features, as migraine is known as a complex disease, involving multiple characteristics that vary from one person to another and that influence the treatment outcome.

Drugs should be chosen taking into account the history of each patient (previous results, allergies, contraindications, comorbidities).

The prescription must include all required information and be clear as to when to use, in which doses, when to repeat or change doses.

The treatment can be done with specific and/or nonspecific drugs. The specific drugs are the triptans and ergot derivatives. The nonspecific drugs are the simple analgesics and the nonsteroidal anti-inflammatory drugs (NSAIDs). The concomitant use of antiemetic, neuroleptic and corticosteroid drugs may be required. Opioids should be avoided.

Triptans are agonists to the serotonin 5HT-1b, 1d-5HT and 5HT-1f receptors. Four medications in this class are sold in Brazil: sumatriptan, naratriptan, zolmitriptan and rizatriptan.

Sumatriptan, a pioneer drug, is the one that comes with more presentation forms: 25 mg, 50 mg and 100 mg tablets, 6 mg subcutaneous injection, 10 mg/dose nasal spray. The subcutaneous use is the one with greater efficiency and speed of action, followed by the nasal route. These two forms are particularly useful in patients showing the early symptoms of nausea and vomiting appearing in the crisis. In order to treat the crises that allow the oral administration, a 50 mg

dose should be tried. If response is unsatisfactory, it should made use of an administration of 100 mg. For any of the dosage forms for an unsatisfactory response, one can repeat the treatment after 2 hours. The maximum daily doses for each formulation are subcutaneous injection - 20 mg (two administrations); nasal route - 40 mg; oral route - 200 mg.

Naratriptan is marketed in tablets of 2.5 mg. This drug shows a disadvantage when compared to Sumatriptan, as it is less potent and has a slower onset of action, but with the advantage of being one of the triptans among those sold in Brazil with the best profile of tolerability, and a more prolonged action. It also seems to show a recurrence rate of less pain than the sumatriptan.

Rizatriptan is the most powerful drug among the oral triptans. In Brazil, it is marketed only in tablets of 10 mg. Patients who use rizatriptan respond to the treatment (i.e., they go from a status of strong or moderate pain to mild pain or no pain) and pain remission in less time than when using other oral triptans. There is an interaction between rizatriptan and propranolol, so that this association causes a more rapid and greater concentration of rizatriptan. In the association with these two drugs, the dose of rizatriptan should be reduced to 5 mg. The presentation of 5 mg tablets is no longer available in our country. After a first administration of 10 mg or 5 mg (indicated only when the patient is using it concomitantly with propranolol), the medicament may be repeated, if required, after two hours. The recommended maximum daily dose is 30 mg/day.

Zolmitriptan is a drug of good oral bioavailability, with similar results to that of the sumatriptan. It is marketed in the form of conventional tablets and oral-dispersible at a concentration of 2.5 mg per dose.

Response to triptans is not uniform. It is assumed that 30% of patients do not respond satisfactorily, but a patient who had failure with one of them, can be successful with the other. Triptans have good toleration. The most common adverse effect is drowsiness. Some patients feel chest, nuchal or cranial tightness few minutes after using these substances. This adverse effect is most common to the subcutaneous sumatriptan, but may occur in any of them. Although daunting to some, it is a harmless symptom, and patients should be warned of the possibility of their occurrence. This group of drugs is contraindicated to patients with a history of ischemic heart disease and ischemic stroke.

It must be remembered that repeating the triptan can be useful for relapses, being observed the recommendations on the maximum doses.

Patients who respond only partially to triptans or to NSAIDs can have a better response when there is a combination of these classes of substances.

The ergot derivatives, in addition to acting on serotonin-5HT 1b and 5HT-1D receptors, they can also act on cholinergic, adrenergic and muscarinic receptors, which can cause a greater range of adverse effects. The only ergot derivative in use in Brazil is the dihydroergotamine, which is available only in the form of fixed combinations (associations with different substances, such as dipyrone or paracetamol, caffeine or metoclopramide), which may constitute in an additional limitation. The dihydroergotamine has an erratic oral absorption, and it is not possible to foresee which serum concentration will be achieved, also having the disadvantage of enhancing nausea and vomiting in some patients.

Since triptans and ergot derivatives act in the same serotonin receptors, the concomitant use of these drugs is contraindicated. When a patient has already used a triptan, he can only use dihydroergotamine six hours later. On the other hand, after the initial intake of dihydroergotamine a triptan can only be used after 24 hours due to the longer half-life of this drug.

Isometheptene is a vasoconstrictor drug, marketed in association with dipyrone and caffeine. It is useful in patients with low-intensity migraine pain.

Some forms of migraine with aura, such as the migraine with brainstem aura (old basilar migraine), hemiplegic migraine and migraine with prolonged aura are contraindicated to be used with triptans, dihydroergotamine or isometheptene.

Simple analgesics (dipyrone and acetaminophen) and NSAIDs are useful. Paracetamol is a low potent drug. It is used more in people who, by allergies or other reasons, cannot use an NSAID or a dipyrone. The recommended dose for adults is 1,000 mg, which may be repeated, if required, up to the limit of 4 grams per day. It is a good option in the elderly patients, to whom the risk of the use of an NSAID is higher. The association with caffeine potentiates its effect. The association with codeine or tramadol is little efficient, and entails a risk of dependence and chronicity of migraine, and it is not recommended.

Dipyrone is a drug banned in many countries because of the risk of agranulocytosis. This fear seems exaggerated, once the estimate is that there will be one case per 1 million users. The risk of death for the use of dipyrone is 0.2 per million users, against 0.25 paracetamol and about 6.0 naproxen and diclofenac. Dipyrone can be used at doses of 1 or 2 grams in migraine crises, and may reach 3.0 grams.

NSAIDs are widely used and effective drugs. They constitute a pharmacological group of very varied characteristics. In the treatment of migraine, drugs of rapid action and short or intermediate half-life are the most indicated.

Opioids should be avoided. Studies on the paracetamol-codeine combination showed no superiority over acetaminophen alone. Meperidine, still widely used in Brazil, has normeperidine, a neurotoxic metabolite, and its use should be proscribed. Although isolated studies on tramadol have shown some therapeutic effect, there are more effective drugs that have no risk of abuse and dependence, so its use is discouraged.

Dopamine antagonists with antiemetic effect (metoclopramide, domperidone and bromopride) are useful even in the absence of nausea. The gastroparesis at a migraine crisis justifies its use. The metoclopramide and

bromopride cross the blood-brain barrier with central and peripheral actions. There is also evidence that the metoclopramide has an anti-migraine action, and it may however, cause extrapyramidal symptoms. In this situation, domperidone is a good option.

STRATEGIES: (1) STEP-BY-STEP TREATMENT VERSUS STRATIFIED AND (2) EARLY TREATMENT

Strategies based on pain intensity – According to pain intensity, the migraine crisis is classified in low (does not interfere with daily activities), moderate (difficult, but do not prevent) and strong (disabling). The drugs for crises treatment (specific and nonspecific) can be used in different ways:

1) *Step by step in different crises* – As there is a great variability in the therapeutic response between different patients, the initial guidance in this case is to treat a sequence of crises with no specific drugs (simple analgesics or NSAIDs). If treatment is ineffective, subsequent crises should be treated with specific drugs (dihydroergotamine or triptans)[6,7].

2) *Step-by-step in the same crisis* – Scaling in the choice of drugs can be used in the same crisis, meaning that if the first action is not satisfactory, specific drugs can be administered in the same migraine crisis[6,7].

3) *Stratified* – During the clinical history interview, the characteristics of previous crises, particularly the intensity of pain, are recorded in order to set a treatment strategy. In patients whose crises are usually mild to moderate in intensity, less potent drugs would be used (simple analgesics or NSAIDs). In patients whose crises are usually moderate to strong, more potent drugs (i.e., triptans) would be the first choice. The stratified approach treats patients with greater functional impairment with specific drugs earlier. Therefore, a faster remission, self-medication and analgesic medication overuse reduction is acheived[8]. Regarding the economic impact, although the stratified strategy show a higher direct cost, its effectiveness leads to a smaller reduction in the individual's productivity, resulting in lower total cost[9,10].

4) *Strategy based on the evolution of the crisis* – The first trials to test the effectiveness of triptans in migraine crisis showed that the result in moderate or strong intensity crisis was insatisfactory[11]. The need for a drug that produces a quick and lasting relief and low recurrence rate[12] led to a change in the approach, with early take of triptan. The best response to this new recommendation (taken in the first hour) was evident[13-16].

Despite the advantages of early triptans use, some factors may hinder this strategy: crises that start during sleeping[8], misuse in a tension-type headache[17,18] and stimulus on the overuse of analgesics[8].

MENSTRUAL MIGRAINE (INCLUDING MINIPROPHYLAXIS), PREGNANCY AND MENOPAUSE

Migraine has peculiar characteristics in the female population, with regard to psychosocial, hormonal, genetic, response to environmental stress and work, perception of pain, contraceptive use, pregnancy, breastfeeding and menopause. The migraine attacks are more frequent, intense, long and disabling in women, justifying different treatment strategies. The use of contraceptives may influence the clinical course of migraine (frequency, intensity), but handling crisis remains unchanged.

TREATMENT OF MIGRAINE CRISIS IN WOMEN

Migraine and menstrual cycle

Among the migraine crises, 35% to 54% women reported to have crises during the menstrual period, that in general, are characterized by:

- Longer duration;
- Increased proportion of recurrence;
- Increased association with disability;
- Increased resistance to treatment;
- Association with dysmenorrhea and premenstrual dysphoric disorder.

The treatment of migraine crises associated with the menstrual period is similar to the other crises, except for plain menstrual migraine, when a miniprophylaxis is favored (5-7 days) with NSAIDs, triptans, magnesium, vitamin E, pyridoxine and hormones (see Figures 1, 2 and 3 and Tables 1, 2 and 3).

Migraine in pregnancy and during lactation

Pregnancy can give rise to changes to the previous pattern of migraine. More often, the improvement occurs with the reduction of the frequency and intensity, and a more prompt response to the medication. Less often, a complete disappearance, worsening or onset of the crisis for the first time is observed. Non-pharmacological therapies (see treatment of migraine without aura) are recommended during pregnancy and may be possibly the only one required in low-intensity crises.

If there is a need for pharmacological treatment, it is necessary to weigh the risks to the fetus. It should be noted, however, the weak scientific evidence regarding the efficacy and maternal-fetal safety.

Among the analgesics, the isolated paracetamol or in combination with codeine can be used for the remission of the migraine crisis of pregnant women.

The NSAIDs ibuprofen, naproxen and indomethacin can be administered only during the first and second quarters, belonging to the category B of the Food and Drug Administration (FDA) fetal risk classification, for use in this period. They are not recommended, however, in the last quarter for increasing the risk of bleeding during delivery,

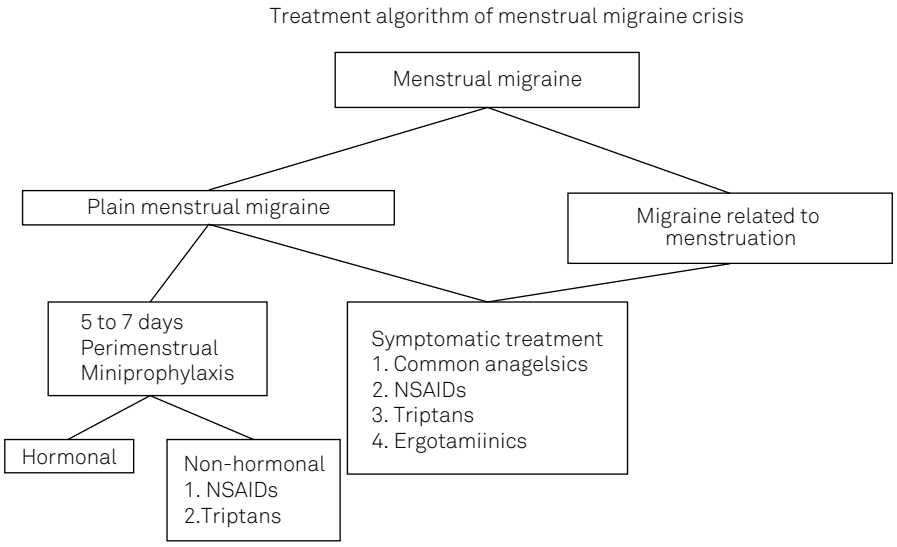

Figure 1. Recommended algorithm for the treatment of menstrual migraine crises[19].

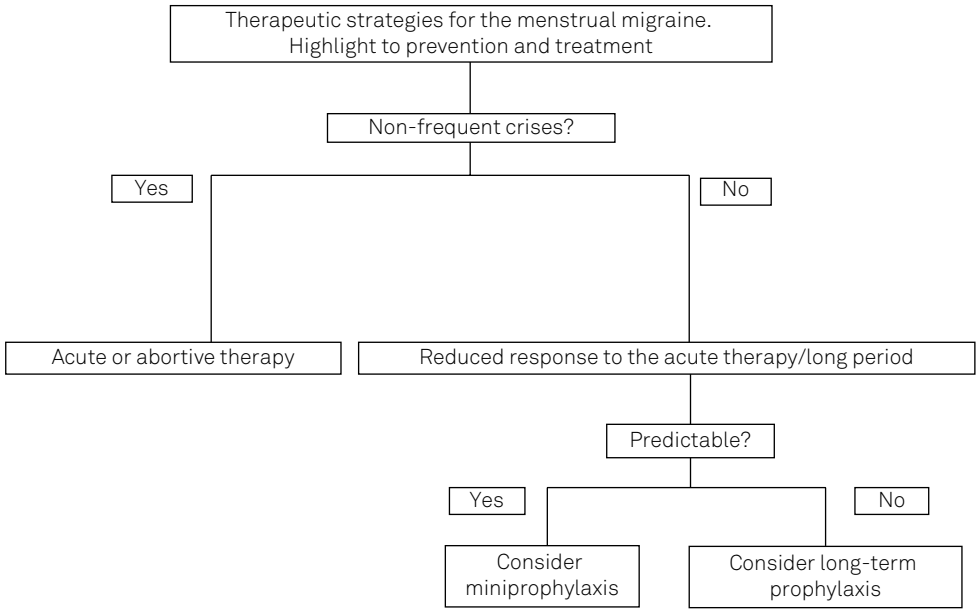

Figure 2. Therapeutic approach of menstrual migraine crises with emphasis on prevention.

fetal closure of the ductus arteriosus and fetal pulmonary arterial hypertension (category D).

In pregnancy migraine crises of high intensity and that are accompanied by nausea and vomiting, chlorpromazine (risk category C), promethazine (risk category B), 10 mg metoclopramide (risk category B), 8 mg ondansetron IV up to 3 doses a day (risk category B) can be used, which may be combined with NSAIDs or opioids (risk category B) (Tables 4 and 5).

Triptans can be used when the benefits outweigh the risks. The use of domperidone is not recommended and the use of ergot derivatives is prohibited (risk categories D and X, respectively).

Usually, there is no worsening of a migraine crisis during lactation. There is little evidence regarding serum concentrations in infants whose mothers were exposed to drugs for treating migraine crises[24] (Table 6).

Migraines and menopause

About 2/3 of women with migraine stop having migraine crises after natural menopause. The treatment of migraine crises in this stage does not differ from that performed during other women's life periods. The frequency of migraine crises is higher in women who have hormone replacement therapy.

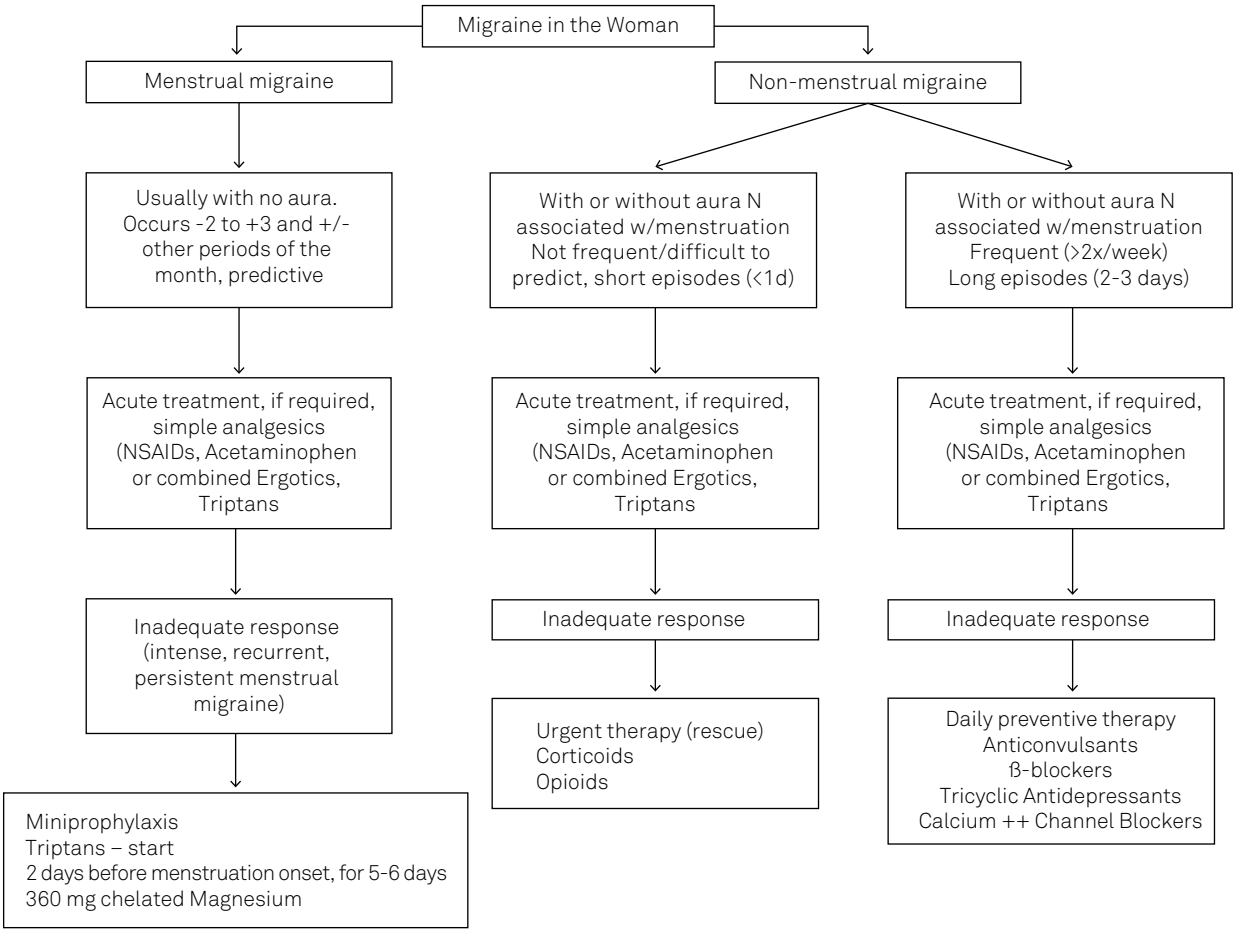

Figure 3. Therapeutic approach of migraine crisis in women according to the III Beta version of the International Classification of Headache Disorders[19].

Table 1. Pharmacological treatment in the menstrual migraine crisis[20].

Symptomatic Treatment	Miniprophylaxis
Strong Evidence of Effectiveness* in the NSAIDs	Menstrual Migraine NSAIDs
Mefenamic acid 500 mg 3 x d	Naproxen sodium 550 mg 2 x d
Nimesulid 100 mg 2-3 x d	Minerals and Supplements
Triptans	Magnesium 360 mg/d
Naratriptan 2.5 mg	Vitamin E 400 IU/d (especially for photophobia, phonophobia and nausea)
Rizatriptan 10 mg	Triptans
Sumatriptan 50-100 mg	Naratriptan 1 mg 2xd
Zolmitriptan 2.5 mg	Sumatriptan 25mg 3xd Hormones Percutaneous estradiol Gel 1.5 mg (-5 to +2 of menstruation) Estradiol patch 100µ (-4 to +4 of menstruation)
Limited evidence or clinical suggestive experience	of the menstrual migraine efficacy
NSAIDs (others)	Ketoprofen 25-50 mg 3 x d Magnesium 360 mg/d Mefenamic Acid 500 mg 3-4xd

Hormone replacement with estrogen in menopausal women can induce migraine with aura. The auras can occur "*again*" or there may be an increased frequency of pre-existing auras. Women with continuous hormone replacement have fewer crises than those with intermittent replacement[25]

Migraine in children and adolescents

Migraine in children and adolescents has particular clinical and therapeutic characteristics. With respect to clinical manifestations in the child, crises are brief, and often, are not accompanied by a headache, as it occurs in the childhood episodic syndromes.

In relation to therapeutic aspects, the relief with sleep and rest, the high rate of response to placebo and the prominence of autonomic symptoms give rise for an individualized approach.

The gold standard of migraine diagnosis in children is clinical and longitudinal, which is why a follow up with a dairy is always recommended.

Symptomatic medication should be used as soon as possible, and can be repeated when required. It should not be used more often than two days per week. The competence to carry

Table 2. List of drugs indicated for the acute treatment of menstrual migraine crisis.

Nonsteroidal Anti-inflammatory Drugs (NSAIDs)
Naxoprene sodium 550 mg 2 x/day, starting two days before date of menstruation (expected) for 5 to 7 days or 500 mg 2x/day, starting 7 days before menstruation to day 6 of the cycle (prophylactic - Level I)
Ibuprofen: 200-400mg - 2-3x/day, starting 7 days before menstruation, to day 6 of the cycle (prophylactic - Level I)
Ketoprofen: 25-50mg – 3x/day, starting 7 days before menstruation to day 6 of the cycle (prophylactic – Level I)
Mefenamic acid: 500 mg – 3-4x/day, starting 2 to 3 days before menstruation to its end (preventive – Level II)
Tolfenamic acid, other NSAIDs, selective inhibitors of cyclooxygenase-2 (COX2) (Celecoxib) may also be used.
Use of NSAIDs does not exclude triptans employment for acute crises that may rise.
Triptans and ergotaminics
Sumatriptan: 25 mg 3x/day – 2 to 3 days before headache onset, for 5 days (preventive – Level I)
Naratriptan: 1 mg (level I) to 2.5 mg (low evidence) – 2x/day – 2 days before headache onset, for 5 days
Triptans and ergominics exclude triptans for crises, but not the use of anti-inflammatory drugs.
Minerals and supplements
Magnesium: 360 mg, chelated a day, from day 15 after the menstruation onset to the following cycle
Vitamin E: 400 UI a day, for 5 days (-2 to +3 from the menstruation onset)

Table 3. Hormonal treatment for menstrual migraine.

Estrogen gel
Percutaneous estradiol gel: 1.5 mg, two days before menstruation for seven days (evidence level II). -5 to 2 days after the beginning of menstruation (1)
Estradiol transdermal patch (TD) 100 µg every two days, for five to seven days (level of evidence II) (three patches), the first three days before menstruation, the second at the first day of menstruation, and the third, two days after the menstruation. If the woman is using contraceptive pills, a patch on pill 20, one on day 23 of the interval and one on day 26 of the interval (2); or a patch on pill 21 and one on day 25 of the interval (two patches).

Table 4. Food and Drug Administration (FDA) drug risk category[23].

Category	Risk
A	Controlled studies in humans show no risks
B	No evidence of risk in humans, but there are no controlled human studies
C	Risk in humans has not been proven
D	Presence risk of evidence in humans, in animal and/or human experiments
X	Contraindicated during pregnancy

Table 5. Risk factors for some drugs (Food and Drug Administration (FDA))[23].

	Pregnancy	Lactation
Simple analgesics		
Aspirin	C (D)	Warning
Acetaminophen	B	Warning
Caffeine	B	Compatible
Dipyrone	C	Compatible
NSAIDs		
Ibuprofen	B (D)	Compatible
Indomethacin	B (D)	Compatible
Naproxen	B (D)	Compatible
Narcotics		
Codeine	C (D)	Compatible
Meperidine	B (D)	Compatible
Tramadol	C	Contraindicated
Ergotamine and serotonergic agonists		
Ergotamine	X	Contraindicated
Dihydroergotamine	X	Contraindicated
Sumatriptan	C	Probably compatible
Corticosteroids		
Dexamethasone	C	Probably compatible
Prednisone	B	Probably compatible
Neuroleptics		
Chlorpromazine	C	Warning
Promethazine	C 1st Quarter B 2nd and 3rd Quarter	Probably compatible
Haloperidol	C	Warning
Metoclopramide	B	Warning

and use the medication at school without a responsible adult aid should be considered to meet the demand of early use.

Initially, the use of simple analgesics is recommended, such as paracetamol and dipyrone (no restriction on age), and NSAIDs (ibuprofen – use recommended over 6 months, and naproxen - over 2 years). Triptans are released for use as of 12 years old. Sumatriptan nasal spray and oral rizatriptan are proven effective. The effectiveness of the sumatriptan association with naproxen sodium was demonstrated in a study. Naratriptan is useful in migraine miniprophyilaxis associated with menstruation in adolescents.

In refractory and emergency crises, considering the use of EV chlorpromazine or dexamethasone (use released over 2 years old, but not indicated in the leaflet). The use of opioids is not recommended.

The presence of gastroparesis during a migraine crisis justifies the use of prokinetic drugs, which must always be used with caution, because of their potential extrapyramidal

Table 6. Drugs used for migraine crisis in children and adolescents.

Drug	Age	Dose	Route
Paracetamol	No restriction	15 mg/kg/dose Up to 6 doses/day	PO
Ibuprofen	> 6 months	10 mg/kg/dose Up to 4 doses/days	PO
Naproxen and naproxen sodium	> 2 years	2.5-5 mg/kg/dose Up to 4 doses/day	PO
Acetylsalicylic acid[a]	> 12 years	7-10 mg/kg/dose Up to 6 doses/day	PO
Dipyrone	< 6 years 6-12 years > 12 years	6-10 mg/kg/dose Up to 1 g/day Up to 2 g/day Up to 3 g/day	PO IR IM EV
Metoclopramide [b]	> 1 year	0.1-0.2 mg/kg/dose Up to 3 doses/day	PO IM EV IR
Domperidone	> 1 year	0.3 mg/kg/dose Up to 3 doses/day	PO
Sumatriptan[c]	> 12 years > 18 years	10 mg 10-20 mg	IN
Zolmitriptan	> 12 years	2.5 mg/dose	PO
Rizatriptan	> 12 years	5-10 mg/dose	PO
Naratriptan	> 12 years	2,5 mg/dose	PO
Sumatriptan in combination with naproxene or naproxene sodium	> 12 years	25-50 mg/dose 250-500 mg/dose 275-550 mg/dose	PO
Isometheptene (association)	> 1 year	1 drop/kg/dose	PO
Chlorpromazine [d]	> 2 years	0.25 mg/kg/dose up to 6 doses 0.5 mg/kg/dose up to 4 doses	PO EV
Dexamethasone	> 2 years	0.25 mg/kg/dose up to 4x day	EV

[a]below 12years old, risk of Reye syndrome; [b]use in children less than 1 year old is contraindicated; use not recommended to children and adolescents between 1 and 18 years; [c]there is no evidence of efficacy for use of sumatriptan PO (3 studies – Class I evidence); [d]medication indicated for a refractory crisis, although not indicated in the national drug information handbook ("off label").

side effects; give preference to domperidone, which has lower rates of these reactions.

The stratified therapeutic strategy is less used in children than in adults, because of crises short duration (sometimes less than one hour) and to the difficulty in assessing pain intensity at the beginning of the crisis.

Besides being medicated, the patient must be emotionally supported by his/her parents and oriented to seek rest and sleep, measures that often promote significant relief.

Patients and their parents should additionally be informed about the crises triggering and aggravating factors, such as prolonged fasting, irregular sleep, certain foods and stress.

The literature reviewed shows a significant recent increase in the number of studies on the treatment of migraine crises in children and adolescents. However, the clinical trial designs in headache in children and adolescents did not follow the advances made in the protocols for adults, having not yet been remedied the bias of the high placebo effect and the small number of responders. Where possible, drugs with indication in the leaflet should be preferred. If there is no available evidence, or in the first-line treatment failure, select a drug with proven efficacy in studies with adults and that is safe for children.

Medications reported in the literature and suggested in this consensus as useful in migraine crisis in children and adolescents, are shown in Table 6.

TREATMENT OF MIGRAINE IN EMERGENCY

Most patients who come to the emergency ward with a migraine crisis, do so because of intense, prolonged or refractory crises to home care. Before starting treatment, it is essential to set the diagnosis and identify the drugs used before the assistance, including their doses. Presence of associated symptoms should be investigated, such as nausea, vomiting, photophobia and phonophobia, focal and/or systemic neurological symptoms. The patient must be assisted in a place that allows resting in a dark and quiet environment.

In Figure 4, we can find a flowchart that may be used in the treatment of migraine crisis.

It is important to pay attention to the warning signs (red flags):

Red flags

- Headache of sudden onset (reaches maximum intensity in up to 1 minute);
- First or worst headache ever experienced;
- Subacute progression (days to weeks) with increasing intensity and/or frequency;
- Standard change or emergence of new headache in migraine patient;
- New headache in patients aged from 50 years;
- Headache in patients with systemic symptoms (fever, weight loss, purulent nasal discharge, sudden high blood pressure, thickening of the superficial temporal arteries etc.);
- Headache in patients with a history of HIV or cancer;
- Headache in patients with glaucoma or other acute ocular disorders;
- Persistent or prolonged aura;
- Headache that appears or disappears with postural change;
- Headache in patients with a history of seizures or recent CET;
- Abnormalities in the neurological examination (including altered consciousness, altered language, altered ocular motility, altered visual field and altered motor and sensory functions, as well as papilledema and meningeal irritation signs);
- Fixed Handedness or exclusively occipital location;
- Absence of improvement with proper treatment;
- Headache triggered by coughing, physical exercise, sexual activity or Valsalva maneuver.

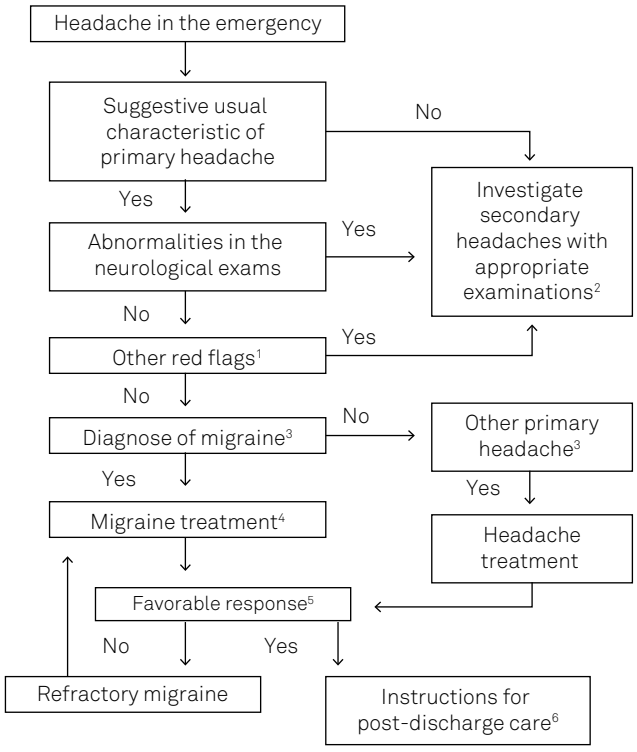

Figure 4. Flow chart for migraine crisis treatment.

In the presence of red flags, apply the appropriate additional examination:

- Skull and or sinuses computed tomography, according to the indication of each case;
- Cranioencephalic MRI, including appropriate sequences to each case;
- Lumbar puncture with complete examination of cerebrospinal fluid, according to the indication of each case;
- Laboratory and/or radiological exams on suspicion of systemic diseases;
- There is no indication for electroencephalogram or sinus radiography in this context.

It must be remembered that for the headache diagnosis we must use current diagnostic criteria - ICHD-3 Beta, 2013.

Treatment with drugs

Table 7 shows treatment options according to the migraine crisis characteristic.

Comments:

a) Intravenous hydration is an important part of the migraine management in an emergency for two reasons: dehydration inherent to the disease and to prevent postural hypotension induced by chlorpromazine, if that will be used.

b) The use of intravenous dexamethasone in prolonged migraine crisis appears to reduce the recurrence rate within 72 hours.

c) Although there is evidence supporting the use of tramadol, the prescription of opioids in the emergency room is not recommended, due to the risk of inducing a migraine chronicity and for the high rate of side effects.

Characterization of favorable response

- Full or significant relief of pain (allows return to daily activities);
- Full or significant relief (allows return to daily activities) of nausea, vomiting, discomfort and/or malaise, as well as any other associated symptoms;
- Reassure that the patient and his family are aware and informed on the diagnosis and feel secure as the conduct adopted.

Instructions at discharge

- Recommend medical consultation for an outpatient follow-up and treatment;
- Prescribe treatment for recurrence of headache;

Table 7. Treatment with drugs.

Medications already used	None	Common analgesics	Ergotics/isometheptene	Triptans
Options	Sumatripthane SC Dipyrone IV NSAID IV	Sumatripthane SC Dipyrone IV NSAID IV	Dipyrone IV NSAID IV	Dipyrone IV NSAID IV
If nausea, vomiting	Antiemetics Hydration	Antiemetics Hydration	Antiemetics Hydration	Antiemetics Hydration
If refractory crisis	Dopamine antagonists Valproate sodium IV	Dopamine antagonists Valproate sodium IV	Dopamine antagonists Valproate sodium IV	Dopamine antagonists Valproate sodium IV

- Calm down the patient and family assuring them on the goodness of migraine crisis;
- Guide for a return in case of emergency:
- Headache return, worsening or change of pattern;
- Fever;
- Vomiting or difficulty to swallow liquids;
- Dizziness, vertigo, imbalance or difficulty in walking;
- Visual, motor or language disorders;
- Other abnormalities that may worry.

CONCLUSION

In conclusion, in this article a group of experts in the treatment of headache of the Brazilian Headache Society and the Scientific Department of Headache of the Brazilian Academy of Neurology, through a consensus, developed strategic measures to treat a migraine crisis in both child and adult. A particular emphasis was given to the treatment of migraine in women, including pregnancy, lactation and perimenstrual period.

References

1. Tepper SJ. Medication-overuse headache. Continuum (Minneap Minn). 2012; 18(4):807-22. doi:10.1212/01.CON.0000418644.32032.7b
2. Hoffmann J, Recober A. Migraine and triggers: post hoc ergo propter hoc? Curr Pain Headache Rep. 2013;17(10):370. doi:10.1007/s11916-013-0370-7
3. Alberti A. Headache and sleep. Sleep Med Rev. 2006;10(6):431-7. doi:10.1016/j.smrv.2006.03.003
4. Li Y, Liang F, Yang X, Tian X, Yan J, Sun G et al. Acupuncture for treating acute attacks of migraine: a randomized controlled trial. Headache. 2009;49(6):805-16. doi:10.1111/j.1526-4610.2009.01424.x
5. Magis D, Jensen R, Schoenen J. Neurostimulation therapies for primary headache disorders: present and future. Curr Opin Neurol. 2012;25(3):269-76. doi:10.1097/WCO.0b013e3283532023
6. Lipton RB, Stewart WF. Clinical applications of zolmitriptan (Zomig, 311C90). Cephalalgia. 1997;17(18 Suppl):53-9. doi:10.1177/0333102497017S1807
7. Lipton RB. Disability assessment as a basis for stratified care. Cephalalgia. 1998;18(22 Suppl):40-6. doi:10.1177/0333102498018S2208
8. D'Amico D, Moschiano F, Usai S, Bussone G. Treatment strategies in the acute therapy of migraine: stratified care and early intervention. Neurol Sci. 2006;27(Suppl 2):S117-22. doi:10.1007/s10072-006-0585-z
9. Lipton RB, Stewart WF, Stone AM, Láinez MJ, Sawyer JP. Stratified care vs step care strategies for migraine: the Disability in Strategies of Care (DISC) Study: a randomized trial. JAMA. 2000;284(20):2599-605. doi:10.1001/jama.284.20.2599
10. Williams P, Dowson AJ, Rapoport AM, Sawyer J. The cost effectiveness of stratified care in the management of migraine. Pharmacoeconomics. 2001;19(8):819-29. doi:10.2165/00019053-200119080-00004
11. Ferrari MD, Goadsby PJ, Roon KI, Lipton RB. Triptans (serotonin, 5-HT1B/1D agonists) in migraine: detailed results and methods of a meta-analysis of 53 trials. Cephalalgia. 2002;22(8):633-58. doi:10.1046/j.1468-2982.2002.00404.x
12. Lipton RB, Stewart WF. Acute migraine therapy: do doctors understand what patients with migraine want from therapy? Headache. 1999;39(Suppl 2):S20-6. doi:10.1111/j.1526-4610.1999.00006.x
13. Valade D. Early treatment of acute migraine: new evidence of benefits. Cephalalgia. 2009;29 Suppl 3:15-21. doi:10.1111/j.1468-2982.2009.02029.x
14. Burstein R, Cutrer MF, Yarnitsky D. The development of cutaneous allodynia during a migraine attack clinical evidence for the sequential recruitment of spinal and supraspinal nociceptive neurons in migraine. Brain. 2000;123(8):1703-9. doi:10.1093/brain/123.8.1703
15. Burstein R, Jakubowski M. Analgesic triptan action in an animal model of intracranial pain: a race against the development of central sensitization. Ann Neurol. 2004;55(1):27-36. doi:10.1002/ana.10785
16. Burstein R, Collins B, Jakubowski M. Defeating migraine pain with triptans: a race against the development of cutaneous allodynia. Ann Neurol. 2004;55(1):19-26. doi:10.1002/ana.1078
17. Stang PE, VonKorrf M. The diagnosis of headache in primary care: factors in the agreement of clinical and standardized diagnoses. Headache. 1995;34(3):138-42. doi:10.1111/j.1526-4610.1994.hed3403138.x
18. Foley KA, Cady R, Martin V, Adelman J, Diamond M, Bell CF et al. Treating early versus treating mild: timing of migraine prescription medications among patients with diagnosed migraine. Headache. 2005;45(5):538-45. doi:10.1111/j.1526-4610.2005.05107.x
19. Brandes JL. The influence of estrogen on migraine: a systematic review. JAMA. 2006;295(15):1824-30. doi:10.1001/jama.295.15.1824
20. Silberstein SD, Hutchinson SL. Diagnosis and treatment of menstrual migraine patient. Headache. 2008;48(Suppl 3):S115-23. doi:10.1111/j.1526-4610.2008.01309.x
21. MacGregor EA, Frith A, Ellis J, Aspinall L, Hackshaw A. Prevention of menstrual attacks of migraine: a double-blind placebo-controlled crossover study. Neurology. 2006;67(12):2159-63. doi:10.1212/01.wnl.0000249114.52802.55
22. Moloney MF, Matthews KB, Scharbo-Dehaan M, Strickland OL. Caring for the woman with migraine headaches. Nurse Pract. 2000;25(2):17-8. doi:10.1097/00006205-200025020-00002
23. Silberstein SD, Lipton RB, Goadsby PJ, editors. Headache in clinical practice. Oxford: Isis Medical Media; 1998. Chapter 16, Pregnancy, breast feeding and headache; p. 191-200.
24. Larsen LA, Ito S, Koren G. Prediction of milk/plasma concentration ratio of drugs. Ann Pharmacother. 2003;37(9):1299-306. doi:10.1345/aph.1C379
25. Nappi RE, Sances G, Detaddei S, Ornati A, Chiovato L, Polatti F. Hormonal management of migraine at menopause. Menopause Int. 2009;15(2):82-6. doi:10.1258/mi.2009.009022