French Guidelines for the Diagnosis and Management of Migraine in Adults and Children

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ABSTRACT

Background: The French Recommendations for Clinical Practice: Diagnosis and Therapy of Migraine are guidelines concerning the overall management of patients with migraine, including diagnostic and therapeutic strategies and assessment of disability.

Objective: This article summarizes the guidelines as they apply to adults and children, and proposes future direction for steps toward optimal treatment of migraine in patients in France.

Methods: The recommendations were categorized into 3 levels of proof (A–C) according to the National Agency for Accreditation and Evaluation in Health (ANAES) methodology and were based on a professional consensus reached among members of the Working Group and the Guidelines Review Group of the ANAES.

Results: The International Headache Society diagnostic criteria for migraine should be used in routine clinical practice. Recommended agents for the treatment of migraine in adults include nonsteroidal anti-inflammatory drugs, acetylsalicylic acid (ASA) monotherapy or in combination with metoclopramide, acetaminophen monotherapy, triptans, ergotamine tartrate, and dihydroergotamine mesylate. Patients should use the medication as early as possible after the onset of migraine headache. For migraine prophylaxis in adults, the following can be used: propranolol, metoprolol, oxetorone, or amitriptyline as first-line treatment, and pizotifen, flunarizine, valproate sodium, or topiramate as second-line treatment. Migraine in children can be distinguished from that in adults by shorter duration (2–48 hours in children aged <15 years), more frequent bilateral localization, frequent predominant gastrointestinal disturbances, and frequent pallor heralding the onset of the attack. The following drugs are recommended in children and adolescents: ibuprofen in children aged >6 months, diclofenac in children weighing >16 kg, naproxen in children aged >6 years or weighing >25 kg, ASA alone or in combination with metoclopramide, acetaminophen alone or in combination with metoclopramide, and ergotamine tartrate in children aged >10 years.

Conclusions: These guidelines are intended to help general practitioners to manage migraine patients according to the rules of evidence-based medicine. (Clin Ther. 2004;26:1305–1318) Copyright © 2004 Excerpta Medica, Inc.

Key words: guidelines, migraine, diagnosis, treatment, adults, children.
INTRODUCTION

The French Recommendations for Clinical Practice: Diagnosis and Therapy of Migraine are guidelines concerning the overall management of patients with migraine, including diagnostic and therapeutic strategies and the assessment of disability caused by migraine. The guidelines were designed for health care professionals involved in the care of patients with migraine (eg, general practitioners, specialists, and pharmacists). This article summarizes the guidelines as they apply to adults and children. The complete text, with full argumentation and references, is available (in French) elsewhere.

These guidelines were developed at the request of the French Society for the Study of Migraine and Headache (Société française d'étude des migraines et des céphalées) by the National Agency for Accreditation and Evaluation in Health (ANAES). The ANAES is an official national agency that uses precise methodology to constitute Working and Review Groups, including specialists, general practitioners, members of the national drug agency, and others. Pharmaceutical companies are not represented in the ANAES, and everyone in the Working and Review Groups must sign a form indicating no conflicts of interest before participating.

Headaches other than migraine are not covered in these guidelines except as part of the differential diagnosis. Other associated topics (ie, conditions associated with migraine [apart from associated psychiatric disorders], predisposing migraine factors, migraine in pregnancy, menstrual migraine, migraine and oral contraception, migraine and smoking, transformed migraine, and rare and complicated forms of migraine headache [International Headache Society (IHS) Codes 1.2.2–1.5, Table I]) are not discussed in this article.

In addition, a complete comparison of these guidelines with those of other national and international guidelines is beyond the scope of this article, because habits, drugs, and behaviors are different between countries. However, as shown in the reference list, these guidelines were based on evidence-based medicine and used data largely from the international literature.

GRADING OF RECOMMENDATIONS IN THE GUIDELINES

The recommendations are categorized into 3 levels (A–C), as follows.

Level A recommendations are based on established scientific evidence with the highest level of proof. These include randomized, comparative, controlled trials with high statistical power and without major bias; and/or meta-analyses of randomized, comparative controlled trials; or combinations of well-conducted studies.

Level B recommendations are based on scientific evidence provided by studies with an intermediate level of proof, such as randomized, comparative trials with lower statistical power; well-conducted, nonrandomized trials; or cohort studies.

Level C recommendations are based on evidence with a lower level of proof, such as that provided by case-control studies or case series.

Unless specified otherwise, the recommendations proposed were based on a professional consensus reached among members of the Working Group and the Guidelines Review Group of the ANAES. The absence of evidence with a high level of proof does not mean that the recommendations are not pertinent or useful; rather, it should be an incentive for additional studies when possible.

MIGRAINE IN ADULTS

Prevalence

According to the diagnostic criteria described later, the estimated prevalence of migraine in adults aged 18 to 65 years is 12 to 17 in 100, with a female predominance (female-male ratio, 3:1).3,4

Table I. International Headache Society classification of migraine.*

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Migraine without aura</td>
</tr>
<tr>
<td>1.2</td>
<td>Migraine with aura</td>
</tr>
<tr>
<td>1.2.1</td>
<td>Typical aura with migraine headache</td>
</tr>
<tr>
<td>1.2.2–1.2.6</td>
<td>Other types of aura</td>
</tr>
<tr>
<td>1.3–1.5</td>
<td>Rare and complicated forms of migraine</td>
</tr>
<tr>
<td>1.6.1</td>
<td>Probable migraine without aura, fulfilling all the diagnostic criteria except one</td>
</tr>
</tbody>
</table>

*Adapted with permission.2

See Table I1 for diagnostic criteria of migraine without aura.

Includes familial and sporadic hemiplegic migraine, basilar-type migraine.

Includes retinal migraine, chronic migraine, status migrainous, persistent aura, migrainous infarction.
Clinical Diagnosis

The recommended diagnostic criteria for migraine were established in 1988 by the IHS, based on an expert consensus. These criteria are summarized in Tables II and III.

Only the diagnoses of migraine without aura (Code 1.1), typical aura with migraine headache (Code 1.2.1), and probable migraine without aura, fulfilling all the diagnostic criteria except one (Code 1.6.1) are covered in this article because the other types of migraine (Codes 1.2.2–1.5) are rarely encountered.

The diagnosis of migraine is based on a clinical triad (professional consensus):

- Recurrent attacks separated by totally pain-free intervals
- Characteristic migraine symptoms
- Unremarkable clinical examination

The IHS diagnostic criteria for migraine without aura and for typical aura with migraine headache are presented in Tables II and III, respectively. These criteria are easy to use and enable the clinician to ask essential questions in a logical and structured manner. It is recommended to use the IHS criteria in routine clinical practice (professional consensus).

Critical analysis of these diagnostic criteria demonstrates an acceptable level of interobserver variability and good specificity, but unsatisfactory sensitivity. Therefore, the criteria are restrictive and cannot provide the diagnosis in all patients with migraine. To avoid this problem in routine practice and thus avoid depriving certain patients of appropriate management, it is recommended to use Code 1.6.1 (probable migraine without aura, fulfilling all diagnostic criteria except one).

Migraine must be distinguished from tension headache, a more diffuse headache that is nonpulsating, not aggravated by exercise, and less intense (mild or moderate pain) than migraine, with no accompanying gastrointestinal (GI) symptoms but sometimes with phonosensitivity and/or photosensitivity (IHS criteria of tension headache). Migraine and tension headache are often associated or intertwined in the same patient.

### Table II. Diagnostic criteria of migraine without aura.*

| A. | ≥5 Attacks fulfilling criteria B–D |
| B. | Migraine attacks lasting 4–72 hours (untreated or unsuccessfully treated) |
| C. | Headache with ≥2 of the following characteristics: |
| | Unilateral localization |
| | Pulsating quality |
| | Moderate or severe pain intensity
| | Aggravation by or causing avoidance of routine physical activity (eg, walking, climbing stairs) |
| D. | The presence of ≥1 of the following symptoms occurs during the headache: |
| | Nausea and/or vomiting |
| | Photosensitivity and phonosensitivity |
| E. | Physical examination between attacks is unremarkable. In case of doubt, organic diseases should be ruled out using appropriate investigations |

*Adapted with permission. The term migraine without aura has replaced the former term, common migraine. The presence of criteria A–E fulfills the strict diagnostic definition of migraine without aura (International Headache Society [IHS] classification code 1.1 [Table I]). If one of the criteria A–D is not fulfilled, the diagnosis is probable migraine without aura (IHS code 1.6.1 [Table I]).

**Table III. Diagnostic criteria of typical aura with migraine headache.**

| A. | ≥2 Attacks fulfilling criteria B–D |
| B. | Aura consisting of ≥1 of the following, but not motor weakness: |
| | Fully reversible visual symptoms, including positive features (eg, flickering lights, spots, or lines) and/or negative features (eg, loss of vision) |
| | Fully reversible sensory symptoms, including positive features (eg, "pins and needles") and/or negative features (eg, numbness) |
| | Fully reversible dysphasic speech disturbance |
| C. | ≥2 of the following: |
| | Homonymous visual symptoms and/or unilateral sensory symptoms |
| | ≥1 Aura symptom developing gradually over ≥5 minutes and/or different aura symptoms occurring in succession over ≥5 minutes |
| | Each symptom lasts 5–60 minutes |
| D. | Headache fulfilling criteria B–D for IHS migraine classification 1.1 (migraine without aura) begins during the aura or follows aura within 60 minutes |
| E. | Physical examination between attacks is unremarkable. In case of doubt, organic diseases should be ruled out using appropriate investigations |

IHS = International Headache Society.

*Adapted with permission. The term migraine with aura has replaced the former term, classic or accompanied migraine.

| For more details, see reference 5. |
| See Table II for diagnostic criteria of migraine without aura. |
Role of Additional Diagnostic Testing

Computed Tomography and Magnetic Resonance Imaging

There is no indication for cerebral computed tomography (CT) or magnetic resonance (MR) imaging (professional consensus) in patients with migraine defined by IHS diagnostic criteria for migraine with or without aura or to differentiate migraine from tension headache. In patients with known migraine, cerebral CT scanning or MR imaging is recommended (professional consensus) in cases of sudden-onset headache (so-called “thunderclap” headache) and recent (past 3 months) headache different from the usual migraine. In cases of acute, severe, intense headache that develops in <1 minute and lasts >1 hour, emergency noncontrast cerebral CT scanning or MR imaging is recommended.

Electroencephalography

Electroencephalography (EEG) is not indicated in patients with migraine as defined by the IHS diagnostic criteria (professional consensus). EEG is not recommended to rule out secondary headaches; CT scanning and MR imaging are indicated for this (professional consensus).

Sinus and Cervical Spine Radiography, Ophthalmic and Orthoptic Examination, and Abdominal Sonography

There is no indication for radiography of the sinuses or the cervical spine, ophthalmic examination, orthoptic examination, or abdominal sonography for the diagnosis of migraine (professional consensus).

Assessment of Disability to Optimize Management

Migraine has a serious impact on patients’ lives because of the frequency of the attacks (≥2 attacks/month in 42%-50% of patients); their duration (>24 hours in 39% of patients); their intensity (severe or very severe in 48%-74% of patients); the presence of associated GI symptoms; and the disruption of activities of daily living (ADLs), including those in occupational, social, and family life.

To achieve optimal management of migraine, it is recommended (professional consensus) to advise patients to keep a diary. Patients should note the date, duration, intensity, and triggering factors of the attack, as well as any medications used to treat it. This diary can be used by the physician to better determine the severity of the migraine, to take into account the impact of the disease on ADLs, and to assist in the choice of treatment and type of follow-up measures required.

Anxiety and/or depressive disorders concurrent with migraine further aggravate disability. Careful history taking is recommended to look for signs of depression or anxiety, and to focus therapy not only on the pain but also on any associated depression and anxiety.

Several scales have been developed to measure the quality of life and productivity of migraineurs. Two scales—the Short-Form Headache Impact Test and the Migraine Disability and Assessment (MIDAS)—have been translated into French but have not been assessed in migraine management in France. Among the migraine population, it would be important to identify those patients who require regular medical care. Further research should be performed in this area.

Pharmacologic Treatment

Migraine is a largely underdiagnosed condition. In French studies, 30% to 45% of migraineurs have never consulted a physician for migraine, and are unaware that they have migraine and that appropriate treatment is available. This situation leads to widespread self-medication for attacks; ~50% of migraineurs use over-the-counter drugs to treat their attacks.

Study of the treatment patterns of migraineurs has revealed overconsumption of nonspecific analgesics, with several doses being taken during the same attack and with half of patients having no significant migraine relief 2 hours after dosing. It also reveals underuse of migraine-specific treatments by patients who would benefit from them, such as those with severe attacks, those whose migraine is disabling, and/or those who do not attain relief with nonspecific drugs.

Acute Treatment

Acute treatments for migraine attacks can be classified into 2 categories: nonspecific agents (analgesics and nonsteroidal anti-inflammatory drugs [NSAIDs]) and migraine-specific agents (ergot derivatives and triptans), which, by their effect on serotonin (5-HT_{1B/1D})
receptors, inhibit neurogenic inflammation and vasodilatation considered to be the cause of migraine headache.\textsuperscript{23}

**Non-specific Agents**

Recommended non-specific agents include NSAIDs (naproxen sodium,\textsuperscript{24,25} ibuprofen,\textsuperscript{26,27} ketoprofen,\textsuperscript{28} or diclofenac potassium\textsuperscript{29} [level A]); acetylsalicylic acid (ASA) monotherapy\textsuperscript{30} (level A) or in combination with metoclopramide\textsuperscript{31,32} (level A); and acetaminophen monotherapy\textsuperscript{33} (level C). Combining metoclopramide hydrochloride with ASA improves the risk for GI symptoms but does not potentiate the analgesic effect of ASA (professional consensus). No clinical evidence shows that combining caffeine with acetaminophen or ASA potentiates the effect of these drugs. Adjunctive use of caffeine cannot be recommended because it may induce drug abuse or dependence/addiction (professional consensus).

Opiate analgesics (eg, codeine sulfate, propoxyphene hydrochloride, tramadol hydrochloride, morphine sulfate) should not be used alone or in combination for migraine because of the risk for abuse or dependence/addiction (professional consensus).\textsuperscript{22}

**Migraine-Specific Agents**

Triptans\textsuperscript{23} (level A) are effective for migraine headache, associated GI symptoms, and phono-/photosensitivity. Ergotamine tartrate\textsuperscript{34} (level B) and dihydroergotamine mesylate nasal spray\textsuperscript{35} (level A) or injection\textsuperscript{36} (level B) are recommended.

Only the compounds listed in Table IV are licensed in France (Autorisation de mise sur le marché [AMM]) for the indication of the acute treatment of migraine.

**Therapeutic Strategy**

**Patients Previously Treated with Non-specific Agents**

During a patient's initial consultation, it is recommended to ask the patient about his or her usual migraine medication practices and the relief obtained with it (professional consensus), using the following questions:

- Do you have significant relief ≤2 hours after taking the medication?
- Is the medication well tolerated?
- Do you take only 1 dose?
- Two hours after taking the medication, can you resume normal occupational, social, and family activities?

If the patient says yes to all 4 of these questions, his or her treatment regimen should not be changed.

If the patient says no to at least 1 of these 4 questions, the physician should prescribe an NSAID and a triptan together. The patient should be instructed to start with the NSAID and use the triptan only if relief is not obtained 2 hours after receiving the NSAID. If the NSAID is ineffective or poorly tolerated, a triptan should be prescribed as the first-line drug.

There are various medical\textsuperscript{37} and economic\textsuperscript{38} arguments for using triptans as the first-line treatment in patients with severe attacks and/or patients who are greatly disabled by migraine. However, due to the lack of validated scales in French for routine clinical practice, no professional consensus exists there.

**Patients Previously Treated with Migraine-Specific Agents**

If a patient treats with ergotamine tartrate, his or her treatment regimen should not be changed if he or she has effective migraine relief (no pain or mild pain) 2 hours after receiving ergotamine, has no contraindications to its use, and is not requiring increasingly higher doses\textsuperscript{39} (professional consensus).

Each triptan has efficacy and tolerability profiles different from the others, but these differences are minimal\textsuperscript{23} (level A). A patient who does not respond to 1 triptan may respond to another.\textsuperscript{39} A patient who does not respond to a particular triptan during an initial migraine attack may respond to it in subsequent attacks (level A). Before concluding that a particular triptan is ineffective in a patient, it should be tried for ≥3 attacks, unless it is poorly tolerated (professional consensus).

**Method of Use**

Irrespective of the type of treatment, the patient should take the medication as early as possible after the onset of migraine headache. Delaying administration of an oral triptan after the onset of a migraine headache might reduce the likelihood of complete relief, increase the risk for headache recurrence and adverse effects, and prolong suffering\textsuperscript{40,41} (level A). If an ergot derivative or triptan is being used, the patient should wait until a headache develops before treating an attack preceded by aura (professional consensus).

For all patients with migraine, the total number of doses taken per month should be counted, using...
### Table IV. Drugs licensed in France (Autorisation de mise sur le marché [AMM]) for the indication of the acute treatment of migraine.

<table>
<thead>
<tr>
<th>Treatment Type/Active Substance</th>
<th>Ages Approved for; y</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptomatic treatments for migraine headache and associated GI disturbances</td>
<td>&gt;10</td>
<td>900 mg given at attack onset</td>
<td>Related to metoclopramide: neuropsychiatric disorders, tardive dyskinesia, extrapyramidal symptoms, endocrine disorders</td>
<td>Related to metoclopramide: pheochromocytoma, GI bleeding, stenosis or perforation of the GI tract, history of drug-induced tardive dyskinesia</td>
</tr>
<tr>
<td>Carbaspirin calcium + metoclopramide HCl</td>
<td>&gt;10</td>
<td>900 mg given at attack onset</td>
<td>Related to salicylate: GI disturbances, hemorrhagic syndrome, hypersensitivity reactions, Reye's syndrome</td>
<td>Related to salicylate: active gastroduodenal ulcer, hypersensitivity to salicylates, risk for hemorrhage</td>
</tr>
<tr>
<td>Lysine acetylsalicylate + metoclopramide</td>
<td>&gt;10</td>
<td>900 mg given at attack onset</td>
<td>Related to metoclopramide: nauropsychiatric disorders, tardive dyskinesia, extrapyramidal symptoms, endocrine disorders</td>
<td>Related to metoclopramide: pheochromocytoma, GI bleeding, stenosis or perforation of the GI tract, history of drug-induced tardive dyskinesia</td>
</tr>
<tr>
<td>Migraine-specific treatments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ergot derivatives</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ergotamine tartrate</td>
<td>&gt;10</td>
<td>Adults: 2 mg/d, max 6 mg/d and 10 mg/wk; Children &gt;10 years: half dose</td>
<td>Ergotism, nausea, vomiting</td>
<td>Hypersensitivity to ergot derivatives, peripheral vascular disease, coronary artery disease, shock, hypertension, severe infection, severe liver failure</td>
</tr>
<tr>
<td>Dihydroergotamine mesylate</td>
<td>&gt;16 and &lt;65</td>
<td>Intranasal solution: 1 spray in each nostril at attack onset; injectable solution: 1 ampule, may be repeated once 30–60 min later (max 2 mg/d and 8 mg/wk)</td>
<td>Intranasal solution: transient local reactions, nasal obstruction, rhinorrhea, Injectable solution: ergotism, precordial pain</td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Treatment Type/ Active Substance</th>
<th>Ages Approved for; y</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSRArs</td>
<td>18–65</td>
<td></td>
<td></td>
<td>Hypersensitivity to SSRArs; history of myocardial infarction or ischemic heart disease, coronary vasospasm (Prinzmetal’s angina), or peripheral vascular disease, stroke, or transient ischemic attack; severe liver failure; moderate or severe hypertension or uncontrolled mild hypertension; combination with monoamine oxidase inhibitor.</td>
</tr>
<tr>
<td>Almotriptan malate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eletriptan</td>
<td></td>
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<tr>
<td>Frovatriptan succinate</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Naratriptan HCl</td>
<td></td>
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<tr>
<td>Rizatriptan benzoate</td>
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<tr>
<td>Sumatriptan succinate</td>
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<tr>
<td>Zolmitriptan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GI = gastrointestinal; HCl = hydrochloride; max = maximum; SSRArs = selective serotonin receptor agonists.
a diary, to identify excessive use of medication (≥10 d/mo for >3 months). Excessive use occurs frequently in patients with migraine and can lead to the development of chronic daily headache related to medication overuse (professional consensus). This is true of all the migraine medications.

**Migraine Prophylaxis**

**Nonpharmacologic Prophylactic Treatments**

Relaxation, biofeedback, and cognitive and behavioral therapies for stress management have been shown to be effective in the prophylactic treatment of migraine (level B) and can be considered in some patients, depending on their psychological profile. Data in the literature are insufficient to draw conclusions about the efficacy of acupuncture, homeopathy, and cervical manipulation for the prevention of migraine.

**Pharmacologic Prophylaxis**

Drugs prescribed for prophylactic treatment of migraine are listed in Table V. The following drugs

<table>
<thead>
<tr>
<th>Active Substance</th>
<th>Daily Dosage</th>
<th>Adverse Effects</th>
<th>Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propranolol HCl</td>
<td>40–240 mg</td>
<td>Common: asthenia, poor exercise tolerance; rare (&lt;1% of attacks); insomnia, nightmares, impotence, depression, hypoglycemia</td>
<td>Asthma, heart failure, atrioventricular block, bradycardia (note possible aggravation of migraine with aura)</td>
</tr>
<tr>
<td>Metoprolol succinate</td>
<td>100–200 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timolol maleate</td>
<td>10–20 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atenolol†</td>
<td>100 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nadolol</td>
<td>80–240 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxetorone fumarate</td>
<td>60–180 mg (1–3 tablets)</td>
<td>Common: somnolence; rare (&lt;1% of attacks); diarrhea requiring discontinuation</td>
<td></td>
</tr>
<tr>
<td>Amitriptyline HCl</td>
<td>10–50 mg in the evening</td>
<td>Dry mouth, somnolence, weight gain</td>
<td>Glaucoma, prostatic adenoma</td>
</tr>
<tr>
<td>Pizotifen maleate</td>
<td>Progressive dosage to 3 tablets/d (0.5–1.5 mg)</td>
<td>Common: sedation, weight gain; rare (&lt;1% of attacks); digestive disorders, vertigo, muscle pain, asthma</td>
<td>Glaucoma, urethroprostatic disorders</td>
</tr>
<tr>
<td>Valproate sodium†</td>
<td>500–1000 mg</td>
<td>Nausea, weight gain, somnolence, tremor, alopecia, abnormal liver function test results</td>
<td>Liver disease</td>
</tr>
<tr>
<td>Methysergide maleate</td>
<td>2–6 mg (1–3 tablets); discontinuation required for 1 mo q 6 mo</td>
<td>Common: nausea, vertigo, insomnia; rare (&lt;1% of attacks); retroperitoneal fibrosis</td>
<td>Hypertension, coronary insufficiency, arteriopathy, gastric ulcer; liver and/or kidney failure</td>
</tr>
<tr>
<td>Flunarizine HCl</td>
<td>10 mg (1 tablet in the evening); ≤6 mo consecutively (0.5–4 mg)</td>
<td>Common: somnolence, weight gain; rare (&lt;1% of attacks); depression, extrapyramidal syndrome</td>
<td>Depression, extrapyramidal syndrome</td>
</tr>
<tr>
<td>Gabapentin†</td>
<td>1200–2400 mg</td>
<td>Nausea, vomiting, convulsion, somnolence, ataxia, vertigo</td>
<td>Hypersensitivity to gabapentin</td>
</tr>
<tr>
<td>Indoramin</td>
<td>50 mg</td>
<td>Somnolence, nasal congestion, dry mouth, ejaculation disorders</td>
<td>Hypersensitivity to one of the active compounds: Parkinson’s disease: severe heart, liver, and/or kidney failure</td>
</tr>
<tr>
<td>Topiramate</td>
<td>50–200 mg</td>
<td>Vertigo, ataxia, somnolence, dysarthria, paresthesia, irritability, asthma, weight loss</td>
<td>Hypersensitivity to one of the active compounds and/or to sulfamides</td>
</tr>
</tbody>
</table>

HCl = hydrochloride.

*All of these drugs are given in tablet form.

†This drug has not been approved for the prophylaxis of migraine.
have been approved for this indication in France: flunarizine hydrochloride, methysergide maleate, metoprolol succinate, oxetorone fumarate, pizotifen, and propranolol hydrochloride (all level A); and dihydroergotamine and indoramin hydrochloride (both level B). Amitriptyline hydrochloride is approved for the indication of refractory pain (level A).

The following drugs are approved for indications other than prophylactic treatment of migraine but are also effective for this indication: atenolol, divalproate, valproate sodium, gabapentin, nadolol, naproxen sodium, timolol maleate, and topiramate (all level A).

There is no evidence that ASA, fluoxetine hydrochloride, cyclandelate, or dihydroergocryptine is effective in prophylaxis of migraine.

**Therapeutic Strategy (Professional Consensus)**

**When to Use Pharmacologic Prophylaxis**

It is recommended to start prophylactic treatment in 2 situations: (1) as a function not only of the frequency and the intensity of the attacks but also of the ADL disability caused by them; and (2) when a patient has taken 6 to 8 doses of acute migraine medication per month for >3 consecutive months, even if the medication is effective, to avoid medication overuse (this applies to migraine-specific and/or nonspecific agents).

The introduction of preventive treatment should be combined with patient education. The patient should be advised that preventive treatment does not eliminate migraine attacks but does limit their frequency and intensity. Keeping an attack diary is helpful for assessing the efficacy of the prophylactic treatment.

**Drugs to Use in Prophylaxis**

No compound has been shown to be more efficacious in migraine prophylaxis compared with the others (level A). Thus, the choice of drug depends on the risk-benefit ratio, including adverse effects, contraindications, drug–drug interactions, and any comorbidities the patient may have. Taking into account the risk-benefit ratio, the following drugs can be used: propranolol, metoprolol, oxetorone, or amitriptyline as first-line treatment; pizotifen, flunarizine, valproate sodium, gabapentin, or topiramate as second-line treatment. Methysergide is effective for third-line prophylaxis, but its use is associated with a risk for retroperitoneal fibrosis; thus, it should be reserved for patients with severe migraine resistant to other treatments. Dihydroergotamine (10–20 mg) is widely used for first-line prophylaxis in France and is well tolerated. However, its efficacy remains to be confirmed.

**Starting Treatment**

Prophylaxis should begin with a single drug, at a low dose. The dose should be increased progressively until the optimal dose is achieved, with adverse effects taken into account.

**Evaluation of Efficacy**

The efficacy of migraine prophylaxis should be assessed after ≥3 months of treatment. Treatment is considered to be effective if the frequency of migraine attacks is reduced by ≥50%. It is also important to take into account the reduction in the consumption of acute-treatment medications and the intensity and duration of the attacks as measured using the diary.

**Alternative Prophylaxis**

If prophylactic treatment is unsuccessful, and the patient has not experienced any adverse effects, the dose can be increased. Or, a different prophylactic drug can be used. After each prophylactic monotherapy has been tried, 2 drugs may be combined, each at a low dose to reduce the risk for adverse effects with either drug.

**Discontinuation**

If successful, prophylactic treatment should be continued for 6 months to 1 year. The dose should then be decreased slowly (over 3–6 months) prior to discontinuation. The same treatment can be restarted if the frequency of the attacks increases again.

**MIGRAINE IN CHILDREN**

**Prevalence**

The prevalence of migraine in children (aged 5 to 15 years) is estimated to be between 3% and 10% in France.

**Clinical Diagnosis**

Migraine in children can be distinguished from that in adults by shorter duration (2–48 hours in children aged <15 years), more frequent bilateral localization, frequent predominant GI disturbances, and frequent
pallor hailing the onset of the attack.\textsuperscript{50}

As in adults, it is recommended to use IHS Code 1.6.1 (probable migraine without aura, fulfilling all the diagnostic criteria but one) to avoid depriving some children of appropriate management. The lack of sensitivity of the IHS diagnostic criteria for migraine without aura is more pronounced in children than in adults.\textsuperscript{51,52}

**Role of Additional Diagnostic Testing**

The role of additional diagnostic testing is the same for children as in adults, except that indications for neuroradiography should be expanded because of the difficulty in establishing the cause of headache in children.\textsuperscript{53}

**Assessment of Disability to Optimize Management**

As in adults, no quality-of-life scale has been validated in French. Instead, it is recommended to keep a diary of the attacks to help the child and his or her family identify precipitating factors, evaluate treatment efficacy, and enable the physician to assess the characteristics of migraine (attack frequency, intensity, and associated GI symptoms) and its impact on daily life (eg, missed school days).

**Pharmacologic Treatment**

**Acute Treatment**

**Nonspecific/Migraine-Specific Agents**

The following drugs are recommended for children and adolescents in acute first-line treatment of migraine (professional consensus): ibuprofen in children aged >6 months,\textsuperscript{54} diclofenac in children weighing >16 kg, naproxen in children aged >6 years or weighing >25 kg, ASA alone or in combination with metamizol, acetaminophen alone or in combination with metamizol, and ergotamine tartrate in children aged >10 years. Sumatriptan succinate nasal spray (10–20 mg) is effective\textsuperscript{55,56} (level A) for the treatment of moderate to severe migraine attacks in adolescents aged 12 to 17 years.

Data\textsuperscript{57} in the literature are insufficient to draw conclusions about the efficacy of oral or injectable sumatriptan in children and adolescents, and sumatriptan nasal spray in children aged 5 to 12 years.

**Therapeutic Strategy**

It is recommended (professional consensus) to instruct patients and their families to use/administer acute medications as early as possible after the onset of migraine headache. The rectal route should be used in cases of nausea or vomiting. The intranasal route should be used in children aged ≥12 years and in children weighing >35 kg. If acetaminophen, ASA, and other NSAID treatments are unsuccessful, sumatriptan nasal spray should be the next line of treatment. If aura develops preceding a migraine attack, the child should wait for the development of headache before treating with triptans or ergot derivatives.

**Migraine Prophylaxis**

**Nonpharmacologic Prophylaxis**

Relaxation, biofeedback, and cognitive and behavioral therapies for stress management are recommended for migraine prophylaxis in children, as in adults\textsuperscript{58} (level B). These treatments have been shown to be more effective than beta-blockers\textsuperscript{59} (level B).

**Pharmacologic Prophylaxis**

Physicians should prescribe drugs as prophylactic treatment only after failure of nonpharmacologic treatments (professional consensus). There is a lack of established scientific evidence about the efficacy of prophylactic treatments in children, but the following drugs can be recommended if nonpharmacologic treatments are unsuccessful or if migraine attacks are particularly frequent or severe, with a significant handicap in ADLs (professional consensus): flunarizine 5 mg/d in children aged >10 years, dihydroergotamine 5 to 10 mg/d, pizotifen 1 mg/d in children aged >12 years, propranolol 2 to 4 mg/kg·d, metoprolol 25 to 30 mg/d, oxetorone 15 to 30 mg/d, and amitriptyline 3 to 10 mg/d. These compounds should be used at low doses to reduce the occurrence of adverse effects, particularly sedation.

**PROPOSITIONS FOR FUTURE ACTION**

To optimize the treatment of migraine in patients in France, the MIDAS\textsuperscript{21} must be validated in studies of migraine. The MIDAS also must be tested as an evaluation tool for deciding when to initiate—and to test the effect of—long-term treatment. Patients requiring regular medical care should be identified. Migraine recommendations should be adapted for individual patients.

Regarding prophylaxis, the efficacy of migraine prophylaxis with dihydroergotamine must be evalu-
ated using the methodology defined by the IHS.

For children, valid and reliable diagnostic criteria must be developed. Also, the efficacy of acute treatment and prophylactic treatment should be evaluated in this patient population.

Finally, due to rapid evolution of migraine treatments, the recommendations established by the Working Group should be revised in 5 years.

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