REVIEW ARTICLE

Management of fibromyalgia: key messages from recent evidence-based guidelines

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ABSTRACT

Fibromyalgia (FM) is a prevalent and costly condition worldwide, affecting approximately 2% of the general population. Recent evidence- and consensus-based guidelines from Canada, Germany, Israel, and the European League Against Rheumatism aim to support physicians in achieving a comprehensive diagnostic workup of patients with chronic widespread (generalized) pain (CWP) and to assist patients and physicians in shared decision making on treatment options. Every patient with CWP requires, at the first medical evaluation, a complete history, medical examination, and some laboratory tests (complete blood count, measurement of C-reactive protein, serum calcium, creatine phosphokinase, thyroid-stimulating hormone, and 25-hydroxyvitamin D levels) to screen for metabolic or inflammatory causes of CWP. Any additional laboratory or radiographic testing should depend on red flags suggesting some other medical condition. The diagnosis is based on the history of a typical cluster of symptoms (CWP, nonrestorative sleep, physical and/or mental fatigue) that cannot be sufficiently explained by another medical condition. Optimal management should begin with education of patients regarding the current knowledge of FM (including written materials). Management should be a graduated approach with the aim of improving health-related quality of life. The initial focus should ensure active participation of patients in applying healthy lifestyle practices. Aerobic and strengthening exercises should be the foundation of nonpharmacologic management. Cognitive behavioral therapies should be considered for those with mood disorder or inadequate coping strategies. Pharmacologic therapies may be considered for those with severe pain (duloxetine, pregabalin, tramadol) or sleep disturbance (amitriptyline, cyclobenzaprine, pregabalin). Multimodal programs should be considered for those with severe disability.

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Background Fibromyalgia (FM) is a frequent, expensive, and controversial condition.[1] Studies report varied prevalence depending on diagnostic criteria used, a country, and a setting. One review reported a global mean prevalence of 2.7% (range, 0.4%–9.3%), with a mean in the Americas of 3.1%, in Europe of 2.5%, and in Asia of 1.7%.[2] The prevalence rates of FM in Poland are unknown. FM is more common in women, with a female to male ratio of 3:1 in epidemiology studies[2] and of 8:1 to 10:1 in clinical settings.[1]

Patient surveys in the United States[3] and Germany[4] demonstrated that most patients use a great variety of pharmacologic and non-pharmacologic therapies. The costs related to FM can be substantial, with over 75% attributed to indirect costs from lost productivity and with increased costs related to increased severity of FM.[5]

The concept of FM continues to stimulate debate amongst researchers and clinicians alike. Advances in the field of functional neuroimaging over the last 2 decades, as well as other lines of physiological experimentation, have highlighted the role of central sensitization (or pain centralization), that is, increased processing of pain, as the main pathogenetic process in FM (and related conditions).[6,7] Some authors have reported a more peripheral abnormality with changes consistent

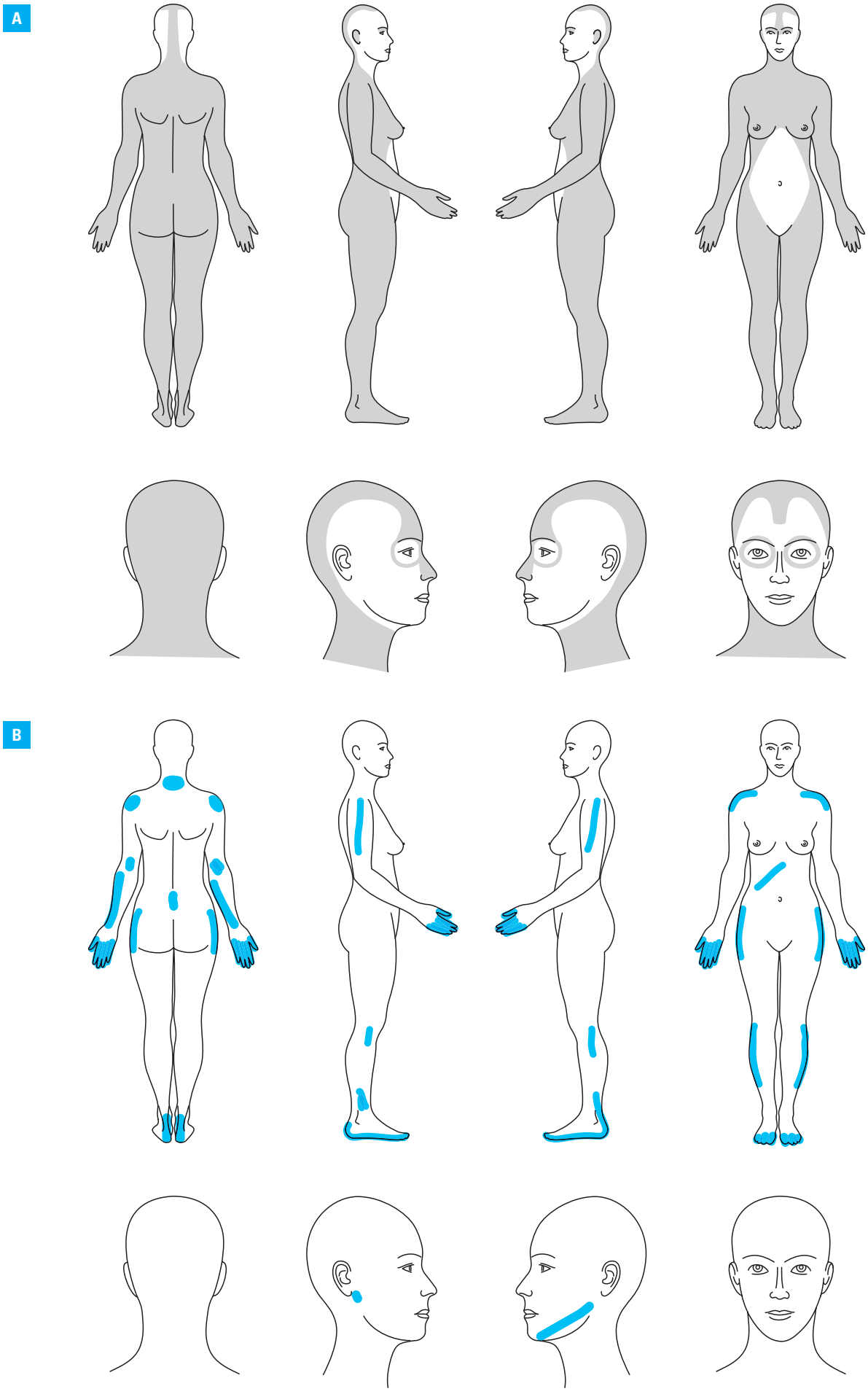

FIGURE 1 Pain diagrams for patients with chronic widespread pain: painful areas are marked by the patient with grey (A) and blue colors (B)

TABLE 1 Fibromyalgia survey questionnaire[21]

I. Using the following scale, indicate for each item the level of severity over the past week by checking the appropriate box. 0: No problem 1: Slight or mild problems; generally mild or intermittent 2: Moderate; considerable problems; often present and/or at a moderate level 3. Severe: continuous, life-disturbing problems				
Fatigue	☐ 0	☐ 1	☐ 2	☐ 3
Trouble thinking or remembering	☐ 0	☐ 1	☐ 2	☐ 3
Waking up tired (unrefreshed)	☐ 0	☐ 1	☐ 2	☐ 3
II. During the past 6 months have you had any of the following symptoms?				
Pain or cramps in lower abdomen		☐ Yes	☐ No	
Depression		☐ Yes	☐ No	
Headache		☐ Yes	☐ No	
III. Joint/body pain Please indicate below if you have had pain or tenderness over the past 7 days in each of the areas listed below. Please make an X in the box if you have had pain or tenderness. Be sure to mark both right side and left side separately				
☐ Shoulder, left ☐ Shoulder, right	☐ Upper leg, left ☐ Upper leg, right	☐ Lower back ☐ Upper back ☐ Neck		
☐ Hip, left ☐ Hip, right	☐ Lower leg, left ☐ Lower leg, right			
☐ Upper am, left ☐ Upper arm, right	☐ Jaw, left ☐ Jaw, right	☐ No pain in any of these areas		
☐ Lower arm, left ☐ Lower arm, right	☐ Chest ☐ Abdomen			
IV. Overall, were the symptoms listed in I–III above generally present for at least 3 months?				
☐ Yes ☐ No				

with small fiber neuropathy.[8] In the disciplines of psychiatry and psychosomatic medicine, FM symptoms are characterized as a functional somatic syndrome, a bodily distress syndrome, or as a somatoform disorder.[9] There are even some psychiatrists who question the value of assigning a diagnostic label to a specific patient.[10] Overlap with other chronic pain conditions is now recognized with the United States Congress and the National Institutes of Health having recently created the term "chronic overlapping pain conditions (COPCs)".[11] Conditions that overlap with FM include temporomandibular joint disorders, irritable bowel syndrome, chronic migraine and tension headache, and painful bladder syndrome.[11] Furthermore, the International Association for the Study of Pain has suggested to include FM as primarily a pain syndrome.[12] Physician uncertainty about recognizing symptoms of FM, differentiating FM from conditions with similar symptoms, and developing an FM treatment plan was noted for a survey of European physicians conducted in 2008.[13]

With the aim of addressing this care gap, 4 evidence-based guidelines have been published in the past 5 years with the aim to assist physicians in establishing a correct diagnosis and to assist patients and physicians in shared decision making on treatment options.[14-18] The aim of this review was to synthesize and summarize the recommendations of the Canadian,[15] German,[16,17] and Israeli[14] guidelines for the diagnosis and of the European League Against Rheumatism (EULAR)[18] recommendations for the management of FM.

Diagnosis Challenges There is often a considerable delay in the diagnosis of FM.[19] Potential reasons are as follows: some physicians may simply fail to recognize that a patient with chronic widespread (generalized) pain (CWP) would satisfy FM criteria; others omit to use the diagnostic label of "fibromyalgia" because they disagree with the concept of FM; and some physicians believe that the diagnosis will be harmful to the patient or health care system.[10] However, making a valid diagnosis of FM and communicating empathetically with a patient can often decrease anxiety, reduce unnecessary further investigations, and provide a rational framework for a management plan.[15]

Screening It is useful to screen patients with chronic pain for CWP, which can be recognized at a glance using a pain diagram completed by the patient (FIGURES 1A and 1B).

In case of CWP, a screening tool for FM (FibroDetect®, Pfizer, New York, United States)[20] or the Fibromyalgia Survey Questionnaire[21] (TABLE 1) (capturing the 2011 and 2016 diagnostic criteria of FM)[21,22] can be completed by the patient to further complement the clinical assessment.

Diagnostic workup of a patient with chronic widespread (generalized) pain No confirmatory blood tests (biomarkers) or imaging or histological analyses are available for FM. At the initial assessment of a patient with CWP, national (Canadian, German, and Israeli) guidelines have proposed that a complete medical and psychosocial history be obtained, including pharmacologic drug use, followed by a comprehensive physical examination. A limited number of laboratory tests will allow for screening for medical conditions that can mimic FM symptoms. All 3 guidelines were in agreement that the diagnosis remains clinical and the purpose of the physical examination and laboratory investigations is to rule out alternative diagnoses.[23] The recommendations for the clinical diagnosis of FM of the Canadian, German, and Israeli guideline are summarized in TABLE 2.

In most cases, the diagnosis can be established based on a history, physical examination that demonstrates general tenderness (muscle, joints, tendons), the absence of some other pathology that could explain pain and fatigue, and normal basic laboratory tests.

Common points to note when taking a history from a patient with FM may include the following: a family history of early chronic pain (eg, low back pain, "rheumatism", etc); personal history of pain (head, abdomen, joints) in childhood and adolescence; long history of local pain; onset of widespread pain related to physical or psychosocial

TABLE 2 Comparison of the recommendations of the Canadian, German, and Israeli guidelines on the clinical diagnosis of fibromyalgia[23]

Feature	Canada	Germany	Israel
history of a typical cluster of symptoms	diffuse body pain present for at least 3 months, and possible symptoms of fatigue, sleep disturbance, cognitive changes, mood disorder, and other somatic symptoms to a variable degree	chronic widespread pain and fatigue (physical and or mental) and sleeping problems/unrefreshed sleep	presence of pain in muscles, joints, connective tissues, various areas of the upper and lower limbs, neck, shoulders, upper and lower back typical symptoms of sleep disturbances, difficulty falling asleep, frequent awakening during the night, disturbed sleep patterns, unrefreshing sleep, chronic fatigue complaints throughout the day, difficulties with concentration and memory
exclusion	other illness explaining the symptoms	somatic disease sufficiently explaining the symptoms the diagnosis of a mental disorder does not exclude the diagnosis of FM	other disorders explaining the symptoms have been ruled out FM may develop in coexistence with additional disorders, be they somatic, inflammatory, psychiatric, or otherwise
recommended methods for exclusion of a somatic disease	complete physical examination, full blood count, ESR, CRP, creatine kinase, and TSH	obtaining history of pharmacologic agents used complete physical examination complete blood count, CRP, serum calcium, CPK, TSH, vitamin D	complete physical examination complete blood count, renal function tests (creatinine and urea), serum calcium and phosphorous levels, liver function tests, CPK, ESR, CRP, TSH, and vitamin D
further tests	any additional laboratory or radiographic testing should depend on the clinical evaluation in an individual patient that may suggest some other medical condition	only in case of clinical hints pointing at a somatic disease	at the discretion of the physician performing the evaluation, based on clinical hints pointing at a somatic disease (low threshold for serological tests, eg, ANA and RF)
tender point examination	not required	facultative	no requirement to document the number of tender points; however, assessment of tenderness recommended as part of physical examination
screening for mental disorders	no statement	recommended	recommended

Abbreviations: ANA, antinuclear antibodies; CPK, creatine phosphokinase; CRP, C-reactive protein; ERS, erythrocyte sedimentation rate; FM, fibromyalgia; RF, rheumatoid factor; TSH, thyroid-stimulating hormone

stress (or both); history of physical or psychosocial stress (eg, child abuse); general hypersensitivity to touch, smell, noise, taste; hypervigilance; multiple somatic symptoms (gastrointestinal, urology, gynecology, neurology) with a previous diagnosis of functional dyspepsia, irritable bowel syndrome, painful bladder syndrome, tension headache, migraine, temporomandibular disorder; and high symptom-related emotional strain.

Diagnostic criteria To reassure the clinician regarding a clinical diagnosis of FM, a reference may be made to one of the published classification or diagnostic FM criteria. These various criteria for FM have undergone numerous revisions since first reported (TABLE 3).

The 1990 American College of Rheumatology criteria A group of rheumatologists of the American College of Rheumatology (ACR) with expertise in FM compared patients with FM diagnosed by their individual criteria with age-matched and sex-matched controls (who had local pain syndromes or [potential] inflammatory rheumatic diseases). The ACR committee found that the presence of widespread pain combined with at least 11 out of 18 tender points best differentiated patients with FM from controls.[24] These criteria, however, failed to acknowledge and incorporate the coexistence of symptoms such as fatigue, sleep disturbance, or cognitive symptoms. Therefore, the presence of 11 out of 18 tender points and the simultaneous presence of CWP for at least 3 months were identified as the classification criteria for FM. Although initially intended for research purposes, these criteria were soon widely used for clinical diagnosis. Concerns about the reliability and validity of the tender point examnination (TPE) were raised, leading to the suggestion to refrain from use in the clinical setting.[25]

2010 American College of Rheumatology preliminary diagnostic criteria The 2010 ACR preliminary diagnostic criteria addressed the various problems of the 1990 ACR criteria. Most importantly, the 2010 ACR preliminary criteria eliminated the TPE, which was replaced by the Widespread Pain Index (WPI). The WPI is a 0–19 count of the number of body regions that are reported as painful or sensitive to pressure ("tender") by the patient. Second, the criteria assessed, on a 0–3 severity scale, a series of additional key symptoms of FM: fatigue, unrefreshing sleep, cognitive problems, and the extent of somatic symptom reporting. The items were combined into a 0–12-point Symptom Severity Scale (SSS). Finally, the WPI and SSS could be combined. In addition, the diagnostic criteria require that the patient has had

TABLE 3 The 1990, 2010 preliminary, and modified 2010 American College of Rheumatology criteria (2011) and 2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria

Criteria (reference)	Diagnostic items	Comments
ACR 1990 classification criteria[24]	widespread pain (bilateral, above and below the waist, and axial) pain in 11 out of 18 tender points (on palpation with a force of ~4 kg)	Tender points are found at the spine, shoulders, ribs, hips, and knees and often at the sites of insertions of ligaments, muscles, and tendons; tenderness at 11 or more of 18 tender points is required to meet criteria.
ACR 2010 preliminary diagnostic criteria[26]	widespread pain and substantial somatic symptoms symptoms present for ≥3 months no other disorder that could explain the pain	Pain is scored by the physician according to the NAA (total score, 0–19), and SSS score ranges from no problem (0) to severe symptoms (3) in 4 domains (fatigue, unrefreshing sleep, cognitive and somatic symptoms; total score, 0–12); total score, 0–31 Criteria are met if NAA is 3–6 and SSS ≥9 or of NAA is ≥7 and SSS is ≥5.
modified 2010 ACR criteria (research or survey criteria or 2011)[21]	modified version of the 2010 ACR preliminary criteria (entirely self-reported assessment of symptoms)	WPI is scored by the patient according to the NAA (total score, 0–19). The SSS score is scored by the patient and is modified to include headaches, pain, or cramps in the lower abdomen and depression (total score, 0–12). Total score, 0–31. Criteria are met if WPI 3–6 and SSS ≥9 or of WPI is ≥7 and SSS is ≥5.
2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria[22]	modified version of research (survey/2011) criteria (entirely self-reported assessment of symptoms)	WPI is scored by the patient according to the NAA (total score, 0–19). The SSS score is scored by the patient and includes headaches, pain, or cramps in the lower abdomen and depression (total score: 0–12). Total score, 0–31. Criteria are met if WPI is 4–6 and SSS ≥9 or if WPI is ≥7 and SSS is ≥5 and there is generalized pain in at least 4 of 5 body regions (4 quadrants and axial) except the face and abdomen

Abbreviations: ACR, American College of Rheumathology; NAA, number of affected areas; SSS, Symptom Severity Scale; WPI, Widespread Pain Index

symptoms present at a similar level for at least 3 months and the patient does not have another disorder that would otherwise sufficiently explain the pain.[26]

Modified 2010 ACR diagnostic criteria (research or survey or 2011 criteria) The application of the modified 2010 ACR diagnostic criteria in the clinical setting was time consuming. The WPI and SSS items required a detailed and thoughtful interview, acknowledging that symptom assessment by physicians is inherently subjective. This led to a further modification of the 2010 ACR diagnostic criteria, which was completed in entirety by the patient. The Fibromyalgia Survey Questionnaire (FSQ; also known as the Fibromyalgia Symptom Scale and the Polysymptomatic Distress Scale) assessed, by patient self-report, the key symptoms of FM that could be used in survey research or other settings.[21]

The FSQ therefore substituted the assessment of somatic symptom intensity, previously completed by physicians, with a questionnaire assessing the number of pain sites and somatic symptom severity now completed by the patient. Patients satisfying the research criteria (a diagnosis of FM in a research context) meet the following conditions: a WPI of ≥7 out of 19 pain sites and an SSS score of ≥5 out of 12, or a WPI between 3 and 6 pain sites and an SSS score of ≥9 (TABLE 1). The symptoms should be present for at least 3 months, and there is no other disorder present that could sufficiently explain the pain. Given that the WPI and SSS comprise the FSQ, this questionnaire can be used to assist medical diagnosis, but the interpretation and assessment of the validity of the questionnaire must be determined by the physician. Self-diagnosis of FM based only on the FSQ is strongly discouraged. The combination of the continuous scale WPI and SSS score (ie, the Fibromyalgia Symptom Scale) enables the assessment of the severity and symptom burden in individual patients instead of classifying patients as FM positive or negative.[21]

2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria The 2010/2011 criteria led to misclassification when applied to regional pain syndromes. Therefore, a further modification has been proposed. The 2016 criteria require a WPI between 4 (2011 required 3) and 6 pain sites and an SSS score of 9 or higher. In addition, generalized pain should be present, defined as pain sites in at least 4 of 5 body regions (4 quadrants and axial) except the face and the abdomen. The 2016 critera also removed the exclusion regarding disorders that could sufficiently explain the pain stating explicitly that a diagnosis of FM is valid irrespective of other diagnoses and that a diagnosis of FM does not exclude the presence of other clinically important ilnesses.[22]

Different fibromyalgia classification and diagnostic criteria: do they matter? The concordance rates of the different criteria in clinical poulations vary, depending on the context.[22,27] The 2010, 2011, and 2016 eliminated the TPE and enabled a diagnosis to be established by physicians other than rheumatologists. However, the newer 2010 and 2011 criteria allow for increased diagnosis rates in men, as women are on average more tender than men, and thus any criteria that include a tenderness threshold will selectively diagnose more women more often.[1] For women, it makes no difference in the clinic which criteria are used. It is worth keeping in mind that in related symptoms,

TABLE 4 Red flags (history, clinical examination, basic laboratory tests) for internal diseases underlying chronic widespread pain

Inflammatory rheumatic diseases (basic laboratory test results: anemia, elevated ESR and/or CRP levels)
rheumatoid arthritis
• history: pain more localized to the joints, especially the joints of the hands and feet; presence of extraarticular features (eg, enthesitis); weight loss; progressive increase in the severity of symptoms
• clinical examination: symmetrical swollen peripheral joints
polymyalgia rheumatica
• history: older age of onset (>60 years); a more clearly defined time of onset over a few weeks; prominent night pain
• clinical examination: limitation of range of motion of shoulders; swollen peripheral joints
inflammatory back pain
• history: nocturnal pain; increased pain at rest; relief with physical activity; prolonged stiffness after rest that can last well over an hour; abdominal pain and diarrhea
• clinical examination: limitation of range of motion of spinal column
Endocrine diseases (basic laboratory test results: anemia, elevated ESR and/or CRP levels, elevated calcium levels; elevated or lowered TSH levels)
acromegalia
• clinical examination: increased size of the hands and feet, coarsening of facial features
hypothyreoidism
• clinical examination: myxedema, rough voice
• history: weight gain
hyperthyreoidism
• history: weight loss
• clinical examination: exophtalmus, tachycardia
hyperparathyreoidism
• history: abdominal pain, constipation, previous kidney stones, gastrointestinal ulcers
Malignancies
• history: fever, weight loss, or night sweats
• clinical examination: peripheral lymphoma

Abbreviations: see **TABLE 1**

such as irritable bowel syndrome, different clinical and classification (Rome I, II, III) criteria are available.[28]

Differential diagnosis Chronic pain of varied degree is a common symptom in patients presenting to internal medicine physicians. While some patients may be specifically referred for a possible diagnosis of FM, physicians must be aware that numerous medical conditions can present with diffuse body pain and masquerade as FM.

Internal diseases such as inflammatory rheumatic diseases, endocrine diseases, or malignancies might cause or contribute to CWP and fatigue. Red flags indicating an internal somatic diseases are outlined in **TABLE 4**.

Some medications may have an adverse effect of body pain that may be confused with FM. These include lipid-lowering agents in the category of statins, aromatase inhibitors[29,30] and bisphosphonates,[31] and, paradoxically, even opioids.[32] Characteristically, the myopathy associated with statin use is painful, occurs early in the treatment phase, and is associated with an elevated creatine phosphokinase level, although this measurement may be normal. In case of moderate to severe muscle pain and/or weakness, discontinuation of the drug is recommended. If the symptoms are associated with statins, they should disappear within 2 months of terminating the medication.[33]

Of note, the diagnosis of other medical conditions that contribute and possibly act as a pain generator to widespread pain is important for the management of the patient, because, for example, severe osteoarthritis of the knee as the cause of knee pain would require treatment strategies other than those for FM.

Management **General treatment principles** Prompt diagnosis EULAR recommendations state that optimal management requires prompt diagnosis. A full understanding of FM requires a comprehensive assessment of pain, function, and the psychosocial context.[18]

Patient education All 4 guidelines[14-18] state that patients should be educated about the condition and treatment options discussed. The Canadian, German, and Israeli guidelines[14-17] explicitly recommended that the diagnostic label "FM" or "FMS" should be communicated to patients after initial diagnosis and that patients should be provided with a clear explanation regarding the nature of the disorder, planned treatment strategy, and expected outcome. This approach is intended to reduce anxiety, which inherently accompanies chronic pain.[15] There is also consensus that patients should be informed about the concept of a biopsychosocialmodel for FM whereby biological factors (eg, genetic predisposition) and psychosocial factors (eg, stress) contribute to the predisposition, triggering, and perpetuation of symptoms. The Canadian guidelines discouraged excessive focus on a triggering event (such as a physical or psychological traumatic event) that could compromise patient care.[15] The German guidelines suggested that the following information should be included in the education of patients[17]:

1 Reassurance that the symptoms are not caused by an organic disease (such as abnormality of the muscles or joints) but are instead based on a functional disorder of the brain (altered processing of pain and other external stimuli);

2 The legitimacy of the ailment should be acknowledged. The symptoms are "real".

3 The symptoms are persistent in most adult patients.

4 Total relief of symptoms is seldom achieved.

5 The symptoms should not lead to disablement and do not shorten life expectancy.

6 Most patients learn to adapt to the symptoms over time.

7 The patient can learn to improve symptoms and health-related quality of life via self-management strategies.

The EULAR recommended providing the patient with information (including written material) about the condition.[18] The German guidelines

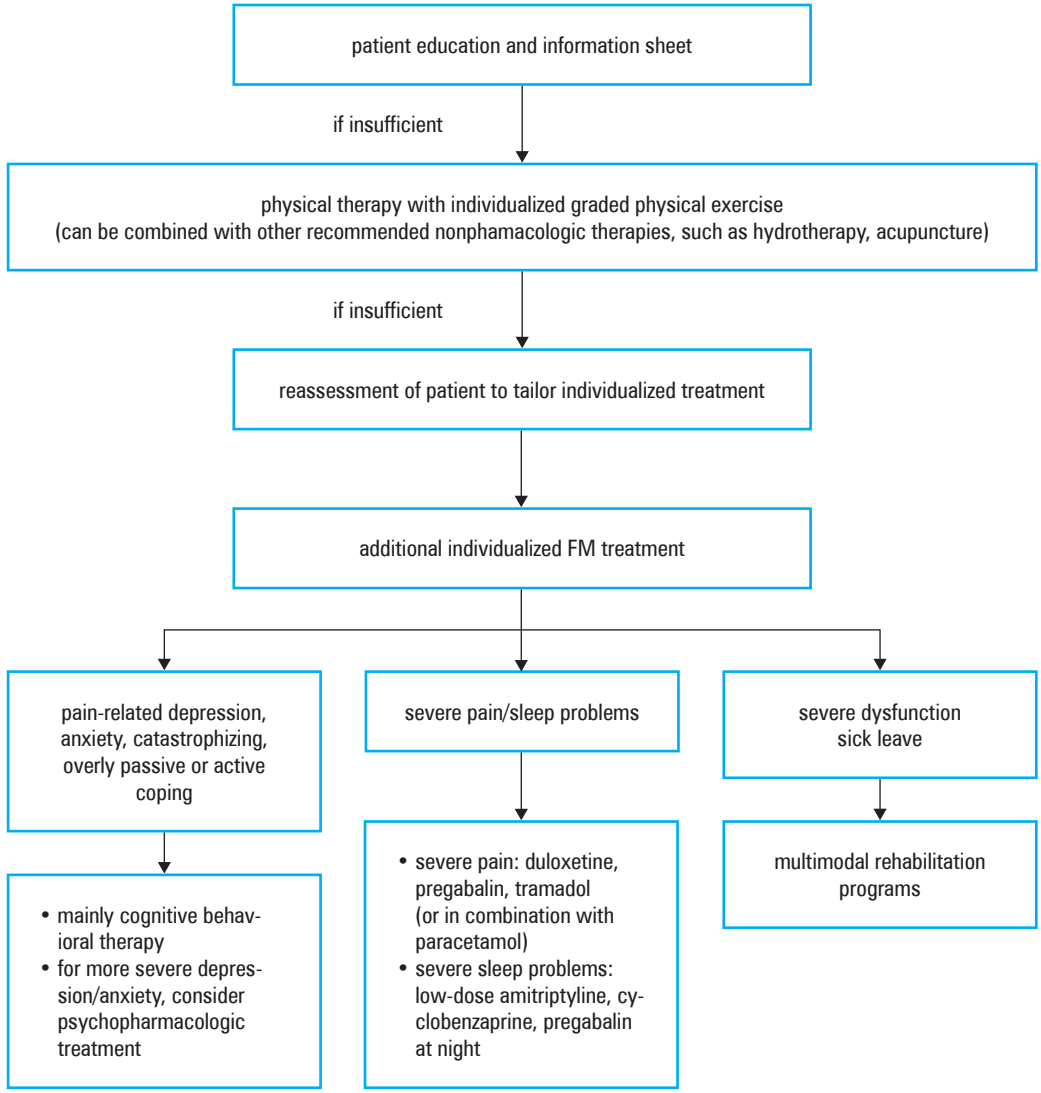

FIGURE 2 Stepwise and individualized treatment according to the European League Against Rheumatism recommendations for the management of fibromyalgia[18]

group developed a patient version of the guideline and handouts for patients and their significant others, which should be distributed to the patient after establishing the diagnosis.[17]

Defining individual and realistic goals of treatment All guidelines emphasized that the goals of treatment are to improve the quality of life, maintain function (functional ability in everyday situations), and reduce symptoms. Some patients with FM may have unrealistic expectations such as complete symptom relief.[34] Therefore, individualized and realistic outcome goals should be developed together with the patient, such as improved daily functioning or symptom reduction (eg, 30% pain relief).[17] Another important aspect is the management of activity and energy, also termed "pacing", which aims to avoid excessive activity or inadequate rest.[15]

Individualized approach Identifying the symptom of major importance to an individual patient can help the physician to develop an anchor on which to base a treatment strategy. The management of FM often requires a multidisciplinary approach with a combination of nonpharmacologic and pharmacologic treatment modalities tailored according to pain intensity, function, associated features (such as depression), fatigue, sleep disturbance, and patient preferences and comorbidities.[18]

Graduated approach The EULAR[18] and German guidelines[16,17] recommend that treatment should focus first on nonpharmacologic modalities with active patient participation championing self-management strategies. This is based on availability, cost, and safety issues, and also patient preferences.

Stepwise and individualized treatment according to the EULAR recommendations for the management of FM are outlined in **FIGURE 2**.

Nonpharmacologic therapies The EULAR-recommended nonpharmacologic therapies are outlined in **TABLE 5**. The only intervention with a strong EULAR recommendation was for aerobic and strengthening training.

Pharmacologic management General principles All drug treatments must balance efficacy and adverse effects, especially for those that affect cognition and fatigue. Drug treatments must be be reevaluated to ensure the need for continuation

TABLE 5 The European League Against Rheumatism recommendations of nonpharmaoclogic therapies of fibromyalgia[18]

Type of therapy	Level of evidence	Strength of recommendation	Agreement
aerobic and strengthening training	Ia	strong	100%
cognitive behavioral therapies	Ia	weak	100%
multicomponent therapies	Ia	weak	93%
defined physical therapies: acupuncture or spa therapy	Ia	weak	93%
meditative movement therapies (qigong, yoga, tai chi) and mindfulness-based stress reduction	Ia	weak	71%–73%

and should be prescribed in the lowest effective dose, which is often lower than the doses reported for clinical trials, and ideally for a limited time.[15,17]

One should differentiate between pharmacologic treatment for continuous pain and pharmacologic treatment for incident pain, eg, exercise-related pain. In the first case, treatments acting on pain modulation are probably more relevant, while classic analgesics are likely to be considered in the second case, for intermitent use.[15]

Nonrecommended drugs Pain is traditionally treated with simple analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs), or opioid medications. However, NSAIDs are frequently used by patients,[3,4] without evidence for effect and therefore not recommended.[18] We speculate, however, that access to over-the-counter NSAIDs in many countries has led patients to develop familiarity with these agents and thereby promoted their use. Another explanation is that patients take NSAIDs because of comorbid osteoarthritis or other localized inflammatory comorbidities, such as bursitis, tendinitis, and others. The EULAR committee made a "strong against" evaluation regarding the use of strong opioids, sodium oxybate, corticosteroids, or growth hormone for FM, on the basis of the lack of evidence for efficacy and high risk of side effects/addiction reported in individual trials.[18] In addition, the EULAR did not recommend several pharmacologic therapies, including nonsteroidal agents (NSAIDs), monoaminooxidase inhibitors and serotonine reuptake inhbitors, because of the lack of efficacy.[18]

Recommended drugs Recommended drugs typically include pain modulators such as the serotonin and noradrenaline reuptake inhibitors duloxetine and milnacipran,[35-37] the tricyclic agent amitriptyline,[36,38] and antiepileptic agents such as pregabalin.[36,39,40] However, it is noteworthy that the proportion of patients who achieve worthwhile pain relief (typically at least 50% reduction in pain intensity) is small, generally 10% to 25% more than with placebo, with numbers needed to treat for an additional beneficial outcome usually between 4 and 10.[41] FM is not dissimilar from other chronic pain disorders in that only a small proportion of trial participants have a good response to treatment.[42]

Patients with FM use on average at least 2 classes of medications, with some being prescribed even 5 or more classes.[3,4] However, the evidence for a combination of drugs with different modes of action is limited to one small study combining pregabalin with duloxetine.[43]

Tailored treatment Cognitive behavioral therapies ("weak for") should be considered for those with mood disorder or poor coping strategies. Pharmacologic therapies (all "weak for") should be considered for those with severe pain (duloxetine, pregabalin, tramadol) or sleep disturbance (amitriptyline, cyclobenzaprine, pregabalin). Multimodal rehabilitation ("weak for") programs should be considered for those with severe disability (**FIGURE 2**).[18]

The updated German guidelines recommend that treatment should be tailored to patients' preferences, comorbidities, and experience with and response to previous treatments.[17] The recommendation of the type of aerobic exercise can depend on the comorbidities of the patient (eg, aqua jogging is more suited for patients with obesity and /or osteoarthritis of the hip and the knee than walking).[17] Of note, some peripheral pain generators in FM might need a different approach than the ones recommended for FM (eg, NSAIDs and strong opioids are not recommended for FM but can be effective for comorbid osteoarthritis).[44] Trigger point injections are not recommended for FM but can relieve overall pain in patients with FM and myofascial pain syndromes.[45] Contraindications related to the use of particular drugs should be kept in mind (eg, duloxetine should be avoided in patients with severe liver damage or amitriptyline in patient with glaucoma). Mental disorders such as depression and anxiety disorders are common in FM and can be diagnosed—depending on the setting and the instrument used—in up to 80% of patients. Psychological distress and mental disorders have a negative impact on FM outcome.[1] Therefore, the German guideline recommends the collaboration with a mental health care specialist in case of moderate or severe mental disorders.[17]

Is there a target for disease outcome for fibromyalgia?

A target should be a standard outcome measurement that is reliable, easy to perform, clinically meaningful, captures disease severity, and has

a defined minimal threshold for improvement. Consideration could even be given to a simple concept of disease status as active, or partial or complete remission, but simply focussing on a single symptom such as pain intensity is no longer a tenable outcome measure. Simplistically, remission may be defined by the patient stating that "I am no longer a patient and no longer suffer due to my FM", independently of pain or fatigue, which may still be present. It should be adapted to patients' priorities and major impacted domains defined by the patients themselves. As patient's narrative may be difficult to anchor multiple complaints, the patient global assessment, encompassing all domains, may be used. The patient global assessment could be a simple starting point in the clinical evaluation, thereafter followed by the assessment of the individual symptom components of FM. Given a choice of individual symptoms of pain, fatigue, sleep disturbance, mood disorder, and cognitive symptoms, a patient could rate and rank these symptoms in order of personal priority. The rating of individual symptoms could be done simply by either a visual analogue scale, narrative rating scale, or a Likert scale. Although physician global assessment of disease is commonly measured simultaneously with patient global assessment, this measurement is open to considerable bias, especially underestimation of severity, or not adapted to patients' priorities, in the setting of a condition characterized by subjective complaints only, and we would caution against using it in the setting of FM evaluation. Similarly, the Patient Global Impression of Change could be applied at follow-up clinical visits, with repeat ranking and rating of individual symptoms.[46] In addition, goal attainment scales can be used to assess how far individualized treatment goals have been reached (for example, "not", "partially", "fully", and "more than expected attained").[47]

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