Fibromyalgia is a common pain disorder predominantly affecting women, with onset at any age. In addition to widespread pain, people with FM report sleep and mood disturbances, suggesting a central etiology. Many conceptualize FM as a disorder resulting from central sensitization of the nociceptive sensory nervous system. FM is a clinical diagnosis, based solely on a pattern of clinical symptoms and signs not better explained by another disorder. As such, FM is diagnosed after other disorders—with specific mechanisms and, consequently, testing—are excluded, including other rheumatologic and neurologic disorders. As a diagnosis of exclusion, other treatable causes of the symptoms (e.g., systemic lupus erythematosus, rheumatoid arthritis, multiple sclerosis, hypothyroidism, and diabetic peripheral neuropathy [DPN] must be ruled out. On the other hand, a diagnosis of FM should be made in its own right, based on widespread pain and tenderness, with associated psychologic comorbidities. A further challenge is that FM is frequently a comorbid condition in individuals with another rheumatologic or neurologic condition.

**Case Report: Fibromyalgia**

**Clinical History and Presentation**

LT is age 57 with history of hypertension, chronic obstructive pulmonary disease, gastroesophageal reflux disease, poorly controlled type 1 diabetes mellitus with peripheral neuropathy, fibromyalgia (FM), bipolar disorder, and generalized anxiety disorder. She reports pain across her lower back, which is worse on the left and radiates down the posterior aspects of her left leg to the ankle. She describes her pain as constant, dull, and severe. It is exacerbated by prolonged standing and walking more than 100 yards with no remitting factors. Pain is also made worse with coughing, and LT reports pain all over her body and profound fatigue, all of which limit her ability to care for herself. She has no weakness, frequent falls, or bowel and bladder dysfunction. She has difficulty falling and staying asleep, and reports severe anxiety and depression. Chart review shows she made 20 visits to the emergency department for pain flares and poorly controlled diabetes in the last year. Although she is diagnosed with FM, she has never received treatment for it.

**Physical Examination and Diagnostic Studies**

On physical exam, LT has decreased range of motion in her lumbar spine with low back pain that is worse on forward flexion than on extension. She has a positive straight leg test on the left at 30 degrees, with radiation of pain down her left lower extremity into her foot and toes. She has normal range of motion bilaterally in her hips, which provoked low back pain on the left. Palpation reveals widespread pain and tenderness, including in the bilateral trapezius and upper back muscles, and tenderness of muscles in all 4 limbs, as well as on palpation of lumbosacral midline spine and bilateral sacroiliac joints. LT’s somatosensory examination reveals intact sensation to light brush, pin prick, vibration, and cold and warm temperature throughout her body, except for a sensory deficit to all modalities in the lateral aspect of her left lower leg and dorsum of her foot, that is worse distally. There is no evidence of allodynia or hyperalgesia. Muscle bulk and tone are normal and she has weakness of the left dorsiflexion. Lumbar radiography taken 2 weeks prior to this clinic visit indicated mild disc space narrowing at left L4-L5 with facet hypertrophy from L4-S1.

Based on the clinical information provided, LT’s symptoms and signs would lead to the diagnosis of FM with a strong suspicion for a concurrent left L5 radiculopathy. In spite of the fact that she had symptoms and signs as presented here, diagnosis of FM did not lead to any specific treatments and those indicative of radiculopathy were ignored, frequently ascribed to her FM, and not specifically addressed. This case points to the challenges of concomitant existence of 2 disorders that have a primary clinical presentation with pain and sensory symptoms.
Diagnosis

A major challenge in FM diagnosis is the broad range of complex symptoms. Psychologic symptoms frequently escape the attention of busy clinicians. The evolution of the diagnostic criteria of the American College of Rheumatology illustrate this challenge well. The most recent consensus requires physician physical examination, a Widespread Pain Index (WPI), and a Symptom Severity Scale (SSS). The WPI is a self-reported list of 19 distinct and diffuse areas described as painful during the past 7 days, with 1 point for each area.2,4 As shown in the Box, the SSS entails rating severity of fatigue, waking unrefreshed, and cognitive symptoms on a scale of 0 (never) to 3 (severe/continuous).1 The WPI also requires accompanying symptoms in the past 6 months, including headaches, lower abdominal pain or cramps, and depression (1 point each). A score of 7 or more on the WPI and 9 or more on SSS is considered diagnostic. Patients are given a final symptom severity score (SSS) of 0 to 12, combining the WPI and SSS scores.2 Misdiagnosis is a frequent challenge.5

Despite improvements to diagnostic criteria developed in 1990 and further refined by in 2010,2 consensus is yet to be achieved. The lack of quantitative disease measures and an incomplete understanding of the pathophysiology of FM continue to challenge clinicians, who struggle to diagnose FM because there is no clear, objective way to do so. A corollary is that clinicians struggle to identify new acute pain conditions in people who have FM. For example, in our case study, a person with FM had evidence of a radiculopathy that had been misdiagnosed as simply an extension of her FM.

FM is more common in early adulthood and in women, who may appear physically healthy compared with people with other chronic pain disorders. The severity of symptoms, however, is debilitating. The incongruence between presentation and reality, coupled with the lack of diagnostic criteria, biomarkers, and radiologic findings can cause misunderstanding in the patient-clinician relationship.6,9 This invalidation, only recently being addressed in clinical medicine, refers to individuals with invisible symptoms perceived by a clinician or others to be inflated or psychologic. Such invalidation can lead to dismissal and disregard by society and healthcare providers, and this may negatively affect symptom severity.7,8 Having medical health professionals discount a person’s subjective symptoms has been correlated inversely with mental health.7

In addition, symptoms that overlap with may other conditions contribute to inaccurate diagnoses. For example, persons with FM share comparable sensory phenomenon to those with DPN.9 In a multisite study across 450 outpatient centers in Germany, 1,623 people with DPN and 1,434 with FM compared the painDETECT questionnaire to assess somatosensory symptoms, pain perception, and comorbidities. Cluster analysis was used to further stratify participants.3 Of those with FM, 40% experienced “severe painful attacks” vs 29% with DPN.

Numbness, in contrast, was noted in 19% with FM vs 30% with DPN. Burning pain and radiating pain were noted in 30% vs 33% and 72% vs 55% in people with FM and DPN, respectively. These findings may represent an underlying common etiology.

In a survey of 189 general clinicians and 139 specialists (rheumatologists, psychiatrists, anesthesiologists and neurologists) 36% of general clinicians and 25% of specialists indicated insufficient knowledge to diagnose FM. Two-thirds (63% of generalists and 66% of specialists) noted the abstract definition, disease complexity, and subjective nature of symptoms as barriers to diagnosis.8 This uncertainty was perceived by some patients as inability to prescribe effective pharmacologic treatment, leading to feeling they could no longer be helped.10

Treatment

An additional challenge of FM is that best-practice care requires multimodal, multidisciplinary treatment, often not practiced or fully reimbursed. For physicians who do not have opportunity to work with the multidisciplinary pain team, this can be partly overcome by referring patients to physical education therapists, psychologists experienced in counseling patients with pain, and other health care providers who have experience in the treatment of chronic pain.

Multimodal treatment requires input from all the members of the multidisciplinary team including physicians, nursing staff, physical therapists, and psychologists, all of whom participate in care of patients with FM. Patient engagement in regular exercise—activities like regular walking, warm water therapy, yoga, and tai chi—are an important starting point and the basis of successful therapy for FM.11

Pregabalin, duloxetine, and milnacipran are the 3 pharmacologic agents that are approved for treatment of FM. Although duloxetine and pregabalin are available as generic medications they remain underused. Ineffective treatments, such as non- (Continued on page 46)
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steroidal anti-inflammatory drugs (NSAIDs) can lead to excessive health care costs that are a burden to both patients and society via direct and indirect costs.6,7,11 People with FM have 2.6 times more medical claims for coexisting conditions annually compared with the general population. Common prescriptions are higher than for an average beneficiary (84% vs 52%; P.<.001).11,12 Other indirect costs are related to lost productivity of presenteeism, time off work, and disability claims.7,12-14

Summary

In summary, there are many opportunities to improve the assessment, diagnosis, and treatment of FM and the lives of people living with this condition. Although standardized diagnostic criteria are a useful step in this direction, development of quantitative measures for diagnosis and treatment will likely prove to further improve outcomes in treatment of FM pain and associated disability.