

How to treat

Pull-out section

www.australiandoctor.com.au

Complete How to Treat quizzes online (www.australiandoctor.com.au/cpd) to earn CPD or PDP points.



Background

MANAGEMENT of medically unexplained or functional somatic syndromes continues to occupy a major and challenging component of general practice. Encompassing such frequently seen conditions as irritable bowel syndrome, chronic fatigue syndrome, fibromyalgia syndrome (FMS) and chronic tension-type headache, these disorders appear to lie at the interface of internal and psychological medicine.

Given that considerable overlap exists between the definitions of these disorders and that more than one disorder can concomitantly occur within the same patient, uncertainty exists as to the validity of differentiating discrete syndromes. Furthermore, both lifetime and current affective and anxiety disorders have been shown to occur with increased frequency in both patients with functional somatic syndromes and their relatives.

Consequently, continuing debate exists about their ultimate nature and legitimacy as medical conditions, the interpretations offered in part reflecting different solutions to the philosophical mind-body problem.

While many authors continue to emphasise a psychological interpretation of these syndromes, namely, that they are a manifestation of somatisation, this article, specifically addressing FMS, uses an alternative view that integrates recent biological and psychological scientific evidence. It is argued that from this evolving synthesis a more productive, evidence-based rational approach is emerging to the management of, at least, the enigmatic and complex disorder of FMS.

Fibromyalgia SYNDROME

inside

Epidemiology

Pathogenesis

Clinical features, evaluation and diagnosis

Management of fibromyalgia

The authors



DR RICHARD KWIA TEK,
visiting rheumatologist, division of medicine, Lyell McEwin Hospital, Adelaide, SA.



MS CATHIE POWELL,
project manager, Australian Collaboration Project for Fibromyalgia Best Practice & Education, Adelaide, SA.

Epidemiology

EPIDEMIOLOGICAL surveys indicate that about 20% of the Australian population experience chronic pain, roughly two-thirds of whom experience some degree of consequent interference with daily activities; in one-quarter the severity of pain is such that it results in high-level disability. Unfortunately, further delineation of the epidemiological characteristics of pain in the Australian community remains to be performed.

However, international surveys report that about 10% of the community has widespread pain, as defined by the American College of Rheumatology (ACR), whereas about 20% have regional pain. Worldwide, and seemingly relatively independent of country or race, about 2% of the population has ACR-defined FMS, thereby accounting for one-fifth of the proportion of the population who have widespread pain.



FMS may occur with increased frequency in primary sleep disorders.

A major female predominance in FMS has been consistently shown, with a female to male ratio of at least 7:1. Growing evidence suggests that ACR-defined FMS can occur at any age from pre-pubertal childhood onwards, with a prevalence in

women that peaks in middle life (40-60 years).

Significantly, ACR-defined FMS is now appreciated to denote the severe end of the spectrum of pain and tenderness in the community. This spectrum starts with chronic regional

pain, and in many individuals FMS appears to have slowly evolved out of an original unrelenting regional pain complaint.

Self-reported health-related quality of life in FMS has consistently been shown to be impaired to at least the same extent as in rheumatoid arthritis. Function can be particularly impaired when FMS co-occurs with fatigue-related symptoms meeting classification criteria for the chronic fatigue syndrome.

Long-term outlook of FMS is incompletely researched, but appears to comprise a spectrum between relapsing and remitting episodes and unrelenting symptoms. Increased mortality from cancer has been inconsistently reported in the literature. Improvement, and potentially remission, controversially appear to occur only in milder disease of shorter duration.

Predominantly cross-sectional and retrospective evidence suggests that

FMS may occur with increased frequency in:

- Inflammatory arthritis.
- Connective tissue disorders.
- Several post- and current infectious states.
- Painful mechanical disorders of the axial skeleton, including post trauma.
- Hypermobility syndromes.
- Past or current stress-related psychiatric disorders.
- Previous physical, psychological or sexual abuse.
- Primary sleep disorders.
- Hypothyroidism.
- Corticosteroid withdrawal.
- Peripheral neuropathy.
- Obesity.

Relatives of patients with FMS have been shown to have an increased incidence of FMS, other functional somatic syndromes, and anxiety and affective disorders, at least in part due to shared genetic factors.

Pathogenesis

FOR many years it has been generally assumed that the peripheral somatic tissues are normal in FMS. Although subtle changes in muscles have been noted in some studies, these have been dismissed historically as being due to physical deconditioning alone.

Given the frequent occurrence of psychological distress in FMS-like presentations, traditionally somatisation theory has been invoked as an explanatory model. This essentially proposes that the origin of the somatic symptoms is a vicious cycle of distress in psychologically vulnerable individuals, causing hypervigilance of normal somatic sensations, with negative cognitive attributions, perhaps causing tension-induced myalgia, in turn causing more psychological distress.

However, growing evidence suggests that, at most, somatisation can only account for a minority of patients with FMS (table 1).

In recent decades a growing scientific effort has been mounted in an attempt to better elucidate the potential psychological and biological bases of chronic pain. Based on findings from animal models of chronic pain of well-defined peripheral organic origin, an alternative explanatory paradigm has emerged.

This paradigm is that the final common pathway for the generation of much otherwise unexplained human pain associated with tenderness is disordered sensory nervous system processing, secondary to sensitisation of afferent neural pain-signalling pathways, principally within the dorsal horn of the spinal cord (figure 1).

In these animal models,

Figure 1: Simplified schematic of human pain neural pathways, indicating descending supraspinal and afferent peripheral influences on pain-processing neurocircuitry within the dorsal horn of the spinal cord.

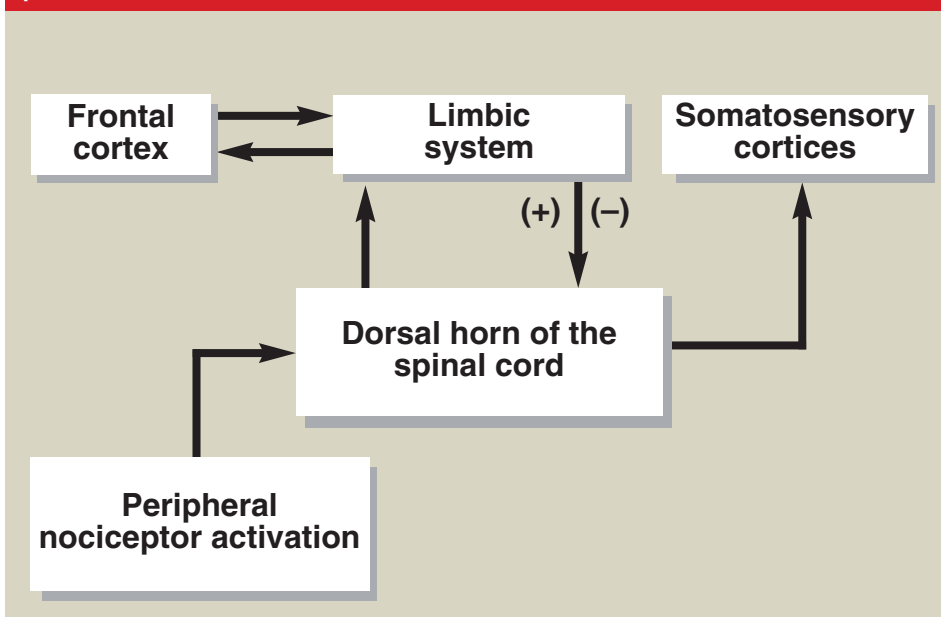


Table 1: Inadequacies of somatisation as an explanatory model for fibromyalgia syndrome

- Somatisation theory is non-scientific, as it cannot be falsified
- Resting muscle in FMS is electrically silent on surface electromyography
- Nociception may be altered not only quantitatively (stimulus-response curve shifted to the left) but qualitatively in FMS
- Psychological distress is not universal in FMS (but occurs in 60-85% of cases)
- Prospective epidemiological studies of the development of chronic widespread pain in the community suggest that psychological distress is neither necessary nor sufficient for the development of FMS
- Cognitive behaviour therapy only helps a subgroup of patients with FMS and tends to do so only modestly
- Hypervigilance has been shown to be present in only a subgroup of patients with FMS

sensitisation within the dorsal horn (so-called central sensitisation of nociception) arises from continuing afferent neural barrages from persistent peripheral painful (nociceptive) foci, especially within muscles. This causes local biochemical and cellular changes, which alter the 'pain gate' function of this

region of the spinal cord.

These changes cause the dorsal horn neural circuitry to become hyper-excitable, causing pain amplification (hyperalgesia) and a tendency for regional non-noxious (mechanical and temperature) peripheral sensory input to be processed as pain (allodynia).

Importantly, descending

supraspinal influences from the limbic brain can modulate this pain-processing circuitry either positively or negatively, implying that the degree of resulting central sensitisation results from an integration of peripheral and supraspinal influences (figure 1).

Also, systemic inflammation can activate the immune system of the CNS, with consequent up-regulation of central sensitisation. Moreover, in some circumstances sensitisation of the dorsal horn can become relatively autonomous of all input. It follows that sensitisation of the dorsal horn along the entire spinal cord could result in a clinical picture of widespread pain, tenderness and pain sensitivity.

Clinical research has shown that the nociceptive flexion reflex is accentuated in most patients with FMS, providing objective evidence of pain-related spinal hyperexcitability in the condition. Psychophysical experiments

have also demonstrated pronounced hyperalgesia and allodynia in FMS.

Therefore central sensitisation has gained considerable international acceptance as an explanatory model for the final common pathway for the generation of pain in FMS. The problem, however, is that FMS often occurs in individuals who appear to have no objective peripheral pathology, which the model would seem to require.

Consequently, proponents of the psychological theory of causation have argued that psychological distress can still completely explain FMS within this new paradigm via alterations in supraspinal influences on the dorsal horn alone. However this does not counter all objections to somatisation theory (table 1).

Furthermore, it logically follows that central sensitisation within the dorsal horn could be caused by intrinsic, supraspinal and/or peripheral factors (table 2), and evidence is slowly accumulating for a role for many of these influences.

The growing impression therefore is that intrinsic, supraspinal and peripheral factors may all play a role in the genesis of central sensitisation.

FMS can therefore be regarded as a stereotypical somatic response to psychological and/or physical stressors in biologically predisposed individuals. However, in many individuals the condition appears to develop slowly and spontaneously. Importantly, it remains incompletely understood how central sensitisation can account for the multiple non-pain-related symptom domains of FMS.

Table 2: Possible drivers of central sensitisation within the dorsal horn in fibromyalgia syndrome

- Abnormal supraspinal modulation?**
 - Psychological factors
 - Neurobiological factors
 - Systemic inflammation
- Intrinsic disorder of dorsal horn?**
 - Neurobiological factors
 - Systemic inflammation
- Tonic peripheral nociceptive input?**
 - Myofascial trigger points
 - Muscle ischaemia
 - Conventional peripheral pain generators:
 - tissue damage/inflammation
 - neuropathies

Clinical features

IN essence, FMS is merely the term coined by North American rheumatologists almost 20 years ago to label the frequently observed concurrence in the community of chronic widespread musculoskeletal pain and tenderness, involving both soft and bony tissues. Almost always this presentation has no, or at least insufficient, clinically demonstrable peripheral cause.

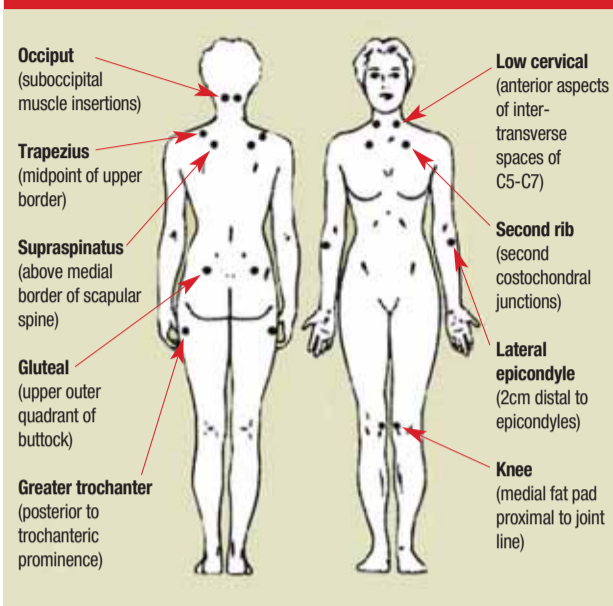
In 1990 the two subjective clinical features of widespread pain and tenderness were controversially used by the ACR to develop classification criteria to define FMS operationally for research purposes (table 3, figure 2). According to the ACR criteria, the presence of a second clinical disorder does not exclude the diagnosis of FMS.

The pain of ACR-defined FMS is often described as having an aching and/or burning quality and primarily involving the muscles, but variably also involves the joints and bones.

It tends to have mixed inflammatory and mechanical features, being worse at night and in the mornings on rising, but also occurring with, and after, exercise, the latter potentially occurring in isolation and perhaps only on the day after the exercise.

The pain tends to be felt more periaxially than peripherally (although the reverse can be seen) and therefore does not have to be experienced globally. A pattern of asymmetric multi-regional involvement that is migratory is frequently reported.

Figure 2: ACR tender points in fibromyalgia syndrome.



The three 'core' symptoms on history of FMS are pain, fatigue and sleep disturbance.

The tenderness of FMS similarly tends to be more predominant in the truncal and proximal limb regions. Of all musculoskeletal structures, it involves particularly the deep soft tissues of muscle and tendon.

Although ACR-defined FMS is characterised by widespread pain and tenderness as its obligatory features, the syndrome is increasingly being appreciated as a multi-dimensional disorder comprising, to varying degrees, additional significant non-pain symptom domains (table 4). The most common of these additional features are sleep disturbance (early, middle or late insomnia, or at least feeling unrefreshed on awakening) and daytime fatigue (especially worse in the mornings and late in the day). Thus the three 'core'

Table 3: The American College of Rheumatology (ACR) 1990 classification criteria for fibromyalgia

1. ≥ 3 months of widespread pain — any distribution involving midline AND above and below waist AND on left and right side of body
2. ≥ 11 of 18 tender-point sites (nine symmetrical pairs) are reported as being painful (not just tender) to digital palpation of about 4kg force (see figure 2)

Adapted from Wolfe F, et al. The American College of Rheumatology 1990 criteria for the classification of fibromyalgia: report of the Multicenter Criteria Committee. *Arthritis and Rheumatism* 1990; 33: 160-172. Reproduced with permission of Wiley-Liss Inc, a subsidiary of John Wiley & Sons, Inc.

Table 4: Frequent clinical features of fibromyalgia syndrome*

$\geq 60\%$ have symptoms of:

- Multi-regional musculoskeletal pain
- Musculoskeletal stiffness
- Fatigue
- Sleep disturbance
- Psychological distress
- Cognitive dysfunction

50-60% have:

- Paraesthesiae
- Subjective swelling
- Non-specific dizziness

Also

- Associated/overlapping conditions:
 - irritable bowel syndrome
 - irritable bladder syndrome
 - chronic tension-type headache/migraine
 - temporomandibular disorder
 - primary dysmenorrhoea
 - restless legs syndrome
 - chronic fatigue syndrome
 - multiple chemical sensitivity
 - sicca symptoms
 - tinnitus
 - pseudo-Raynaud's phenomenon

*Adapted from Yunus MB. Role of central sensitization in symptoms beyond muscle pain, and the evaluation of a patient with widespread pain. *Best Practice & Research Clinical Rheumatology* 2007; 21:481-97. Reproduced with permission from Elsevier Ltd.

symptoms on history of FMS are pain, fatigue and sleep disturbance.

Many also complain of: ■ Musculoskeletal stiffness (with the seemingly

inflammatory features of being worse in the mornings and after periods of rest).

■ Psychological distress (anxiety, stress and depression) and/or

■ Cognitive dysfunction (often poor concentration, short-term memory or word-finding ability).

A moderate number also complain of non-specific dizziness (occasionally due to neurally mediated hypotension), peripheral paraesthesiae and numbness, and poorly defined peripheral swelling. Many concomitantly have one or more additional functional somatic syndromes, such as irritable bowel syndrome, restless legs syndrome or chronic headache.

Environmental sensitivity is also frequently reported, and FMS pain is often aggravated by weather (cold or humid), weather changes, poor sleep, emotional stress, physical over-activity or physical inactivity, and may flare in response to noise and smell.

On physical examination, in addition to widespread tenderness, dermatographia may be prominent. Reticular skin discolouration, malar flushing (but not a fixed malar rash), pseudo-Raynaud's phenomenon involving the whole hand (not just the digits) and occasionally spontaneous bruising may also occur. In the uncomplicated FMS patient, physical examination is otherwise normal.

Adapting the ACR criteria for clinical diagnosis

THE ACR classification criteria for FMS (table 3 and figure 2) were not designed for clinical diagnostic purposes, and in 1990 were shown to have only 88% sensitivity and 81% specificity against the consensus opinion of experienced clinicians.

Unfortunately, no independent objective gold standard currently exists for the clinical diagnosis of FMS, but may evolve out of continuing research. The diagnostic process for FMS therefore remains somewhat problematic, but the 1990 ACR criteria can be adapted to provide a practical diagnostic method to identify clinical subtypes of the syndrome (tables 5 and 6).

The core feature of FMS on examination is widespread soft tissue tenderness, especially of muscles. A practical bedside method for calibrating the 4kg of digital force required for the ACR tender-point criterion is for clinicians to determine on their own forearm the digital pressure that is 80% of that which causes local pain. Although it is widely suggested that the pressure to cause blanching of the thumbnail adequately approximates the 4kg pressure requirement, this tends to give

For the practical clinical diagnosis of FMS, the finding of widespread muscle tenderness to 4kg of pressure, whether at ACR tender points or otherwise, is more critical than the actual ACR tender-point count.

Table 5: Variants of fibromyalgia syndrome

ACR-defined FMS:

- ≥ 3 months' widespread pain
- ≥ 11 out of 18 tender points painful to palpation

Incomplete FMS:

- ≥ 3 months' widespread pain
- 6-10 out of 18 tender points painful to palpation
- ≥ 3 associated features on history

Regional FMS:*

- Regional tenderness, often emanating from the spine
- Regional tender points painful to palpation

*Alternative terms include: regional pain syndrome; regional non-organic soft tissue rheumatism; myofascial pain syndrome (but often differentiated as being a separate but related disorder); fibrositis

a significant underestimate.

People with FMS are tender all over but are more so at the ACR tender-point sites, because these sites are inherently more tender than elsewhere in all people, healthy or otherwise. Consequently global soft tissue tenderness can be more reliably determined by evaluating tenderness at the ACR tender-point sites, hence the practical merit of the ACR tender-point count.

However, clinical research has confirmed that an abridged tender-point examination, which may include soft tissue (ie, muscle) con-

trol points, can be used for screening purposes. Therefore, for the practical clinical diagnosis of FMS, the finding of widespread muscle tenderness to 4kg of pressure, whether at ACR tender points or otherwise, is more critical than the actual ACR tender-point count.

Of note, the validity of using tender-point counts for diagnosing FMS has been widely criticised, as epidemiological studies have shown that the tender-point count significantly co-varies with psychological distress levels, independent of the presence of pain. However, psychophysical testing has confirmed

Table 6: Clinical classification of fibromyalgia syndrome

1. Primary — no concomitant predisposing conditions present

- Underlying genetic factors
- Physical or psychological stressors may aggravate

2. Secondary — concomitant predisposing conditions present

- Spinal mechanical pain syndromes (stenosis, post trauma)
- Hypermobility syndromes
- Inflammatory arthritis (especially rheumatoid arthritis)
- Connective tissue disorders (SLE, Sjögren's syndrome)
- Systemic inflammatory states (polymyalgia rheumatica, obesity, chronic infections, especially neurotrophic HIV and hepatitis C)
- Post-infectious fatigue syndromes
- Neuropathies
- Primary sleep disorders (including obstructive sleep apnoea)
- Stress-related psychiatric disorders

that people with FMS are always tender, irrespective of their psychological status.

Longitudinal follow-up of indi-

viduals with FMS frequently demonstrates that the ACR tender-point count varies over time and often may not be sufficient to qualify for the complete syndrome of FMS under ACR criteria. FMS has therefore been interpreted as being not only a state but trait diagnosis (table 7), with patients often moving diagnostically between

FMS and variants of the syndrome (table 5), or even in and out of remission.

Preliminary evidence suggests that incomplete and regional FMS are identical aetiologically to FMS, but cause less impact on health status. They also are precursors to the development of FMS in many individuals, often having been trig-

gered by local nociceptive pathology (tables 2 and 6).

It follows therefore that all people who complain of musculoskeletal pain, of whatever aetiology, whether described as being localised or more diffuse, should be routinely examined for soft tissue tenderness, both regional and widespread.

Table 7: ACR-defined fibromyalgia syndrome

- No objective gold standard for diagnosis, but a confident clinical diagnosis can still be made
- Differentiate primary from secondary FMS by careful clinical evaluation
- A diagnosis of primary FMS is effectively always provisional
- Not a diagnosis of exclusion
- Diagnosis is not exclusive
- FMS is both a state and trait diagnosis

Clinical evaluation of chronic widespread pain

WHILE at one level the diagnosis of FMS can be disarmingly simple, especially in the typical setting of an otherwise essentially well woman in middle life with longstanding symptoms, evaluating the patient with chronic widespread pain can be complex and require high-level clinical skills.

This is in part because it is common for people with chronic pain to have varying degrees of concomitant, centrally mediated non-nociceptive pain (central sensitisation) and peripheral nociceptive pain.

Both types of pain therefore need to be thoroughly assessed and treated for optimal management of patients with chronic pain. Potential peripheral pain generators include inflammatory and degenerative arthritis, tendinopathies, neuropathies, and the controversial construct of myofascial trigger points.

Furthermore, pain of any cause can be independently exacerbated by psychological, behavioural and cognitive factors, which also need to be assessed and addressed.

The diagnostic process therefore involves:

- First determining if peripheral nociceptive and/or central non-nociceptive



Specific inquiry should be made about mood, anxiety, fear, anger and guilt.

processes are causing the widespread pain;

- Then, if a variant of FMS is diagnosed, determining if it has been caused by a recognised medical condition; and,
- Finally, excluding important differential diagnoses.

The last two steps are complicated further, as many conditions that bear at least superficial resemblance clinically to FMS also appear to predispose to the development of FMS (table 6). Moreover, it is conceivable that the biological and/or psychological stress of any medical condition could at least exacerbate if not trigger FMS in predisposed individuals.

Consequently, the diagno-

sis of primary FMS is effectively always provisional and the development of new or worsened symptoms in established FMS should never be dismissed as being due to FMS alone without careful consideration.

History

A comprehensive musculoskeletal history should be taken, asking (as a minimum) about features of:

- Pain (onset, location, quality, diurnal variation of pain and stiffness).
- Sleep.
- Daytime fatigue.
- Swelling (of joints or otherwise).
- Function.
- Aggravating/relieving factors.

Table 8: Important conditions to be excluded, at least clinically, in fibromyalgia

- Hypothyroidism
- Polymyalgia rheumatica
- Multiple sclerosis
- Statin myopathy
- Hypovitaminosis D
- Hepatitis C infection
- Obstructive sleep apnoea
- Cervical stenosis
- Connective tissue diseases (especially inflammatory arthritis)

- Treatment history.

The presence of the FMS core symptoms of chronic multi-regional musculoskeletal pain (with combined inflammatory and mechanical features), sleep disturbance and fatigue should prompt specific inquiry about cognitive function, psychosocial stressors, neurological symptoms and other functional somatic syndromes (table 4). If several of these are also present, the diagnosis of FMS is strongly suggested from the history alone.

A systems review screening for systemic disease should be performed (eg, recent appetite and weight changes). Current medications must be noted, in par-

ticular, statin usage. Specific inquiry should also be made about mood, anxiety, fear (especially of movement), anger and guilt.

Examination

A musculoskeletal examination comprising, as a minimum, a screening assessment of all axial and peripheral joints (to exclude degenerative and inflammatory arthritis) and soft tissues (a tender-point examination) is essential, but must be more comprehensive in regions suggested by the history, eg, to exclude tendinitis.

A screening examination of the peripheral neurological system is also indicated, comprising deep tendon reflex assessment as a minimum, and otherwise as suggested by the history. The remaining systems should also be screened to exclude a complicating medical illness, again according to the history.

Investigations

Evaluation of the patient with chronic, relatively stable, widespread musculoskeletal pain is primarily clinical, with investigations frequently confusing the presentation because of a high rate of incidental findings in laboratory and imaging studies.

However, for all patients

newly diagnosed with FMS, a reasonable basic investigative screen is an FBC, full biochemical screen, thyroid function tests, creatine kinase, C-reactive protein and ESR.

Further testing to exclude secondary causes of FMS (table 6) should be guided by the clinical presentation and should be especially considered in the patient with atypical FMS, such as males. The unstable FMS patient also requires careful evaluation for medical conditions causing acute or sub-acute nociceptive pain, such as malignancy.

Differential diagnosis

The differential diagnosis of widespread pain is quite broad, and even more so when non-pain symptoms of FMS are considered. Important conditions to be excluded, at least clinically, in patients presenting with features suggestive of FMS are listed in table 8.

Although many of the listed conditions appear to predispose to FMS, multiple sclerosis, statin-induced myopathy, and hypovitaminosis D are important seemingly independent differential diagnoses. Other differentials include rare myopathies and endocrine disorders, such as Addison's disease.

Management of fibromyalgia

GRATIFYINGLY, the recent pathogenetic insights into the role of central sensitisation in generating the pain of FMS have inspired both an evolving rigorous scientific evaluation of the management of FMS and continuing development of mechanism-specific treatments, both with moderate efficacy.

The management of this complex, previously regarded as 'heart sink', condition has consequently become far more rewarding, because it has moved beyond the traditional rehabilitative approach towards the care of chronic pain in which the suffering only, and not the pain causing it, was seen to be amenable to treatment.

In fact, the existence of potentially effective treatments implies that early diagnosis and treatment of FMS is now strongly desirable, so that any chance for inducing remission can be exploited, or, at least, so that possible deleterious physical (regional or general



Stress-management techniques such as tai chi should be encouraged because patients with FMS are more sensitive to stress.

deconditioning) and/or psychosocial consequences (abnormal illness behaviour and socioeconomic disintegration) from an untreated

pain syndrome can be minimised.

GPs therefore can play a critical role in the management of chronic widespread pain by providing early diagnosis and intervention, or, at least, early referral to an appropriate specialist (in pain medicine or rheumatology) for clarification of diagnosis and treatment options. Indeed, the management of FMS now has great potential to remain entirely community based, under co-ordination by the GP.

Significantly, FMS management has recently formally entered the evidence-based medicine era (table 9, page 35), and this evidence has been distilled into the four often quoted principles of education, mechanism-specific neuromodulatory medication, physical therapy and psychosocial interventions, ideally in combination because of recognised synergism (table 10, page 35).

However, it should be appreciated that these four principles presuppose a thorough evaluation

for, and specific treatment of, any comorbid predisposing, potentiating or consequential factors.

Also, these principles are primarily directed towards the management of pain — often the most pressing symptom of FMS. However, successful management of pain, often incompletely alleviates other significant symptom domains, implying that they may not be purely secondary features. It therefore follows that the specific symptom domains of each patient need to be routinely identified and ranked, so that treatment can be individually optimised (see below).

Despite these advances, there remain no quick-fix cures for FMS. Management therefore largely needs to be conducted within the chronic disease model. The relationship between patient and GP is consequently one of partnership, with the GP performing a vital supportive and coach-

cont'd page 35

from page 33
ing role, referring to other health professionals as appropriate.

Effective self-management

As with all chronic illnesses, active coping skills for effective self-management by FMS patients need to be developed and encouraged, and are of particular significance in FMS, given the potential for psycho-behavioural factors to contribute pathogenetically to the syndrome.

The development of active coping skills presupposes an in-depth accurate understanding of FMS and its management (figure 3). This requires quality education, which, for behavioural reasons, is ideally delivered in small groups under skilled lay or professional leadership, but useful Internet-based resources are available (see Online resources for patients, below right).

Engagement in this process is a critical issue and it seems that the important initial step is validation of the reality of the patient's symptoms. Experience indicates that dismissal of symptoms by health professionals risks the development of unhelpful illness behaviour.

A proper understanding of FMS will promote both acceptance and empowerment to actively manage it, avoiding resignation. Notably, for people with mild symptoms no further interventions may be needed, as the provision of a diagnosis and practical advice on self-management skills in exercise and stress management in understandable terms may be sufficient.

Medications

For patients with moderate to severe pain, no progress with self-management techniques is likely without pharmacological intervention to improve pain control. Consistent with the central sensitisation model, pain modulatory medications are the most effective.

Traditionally low-dose tricyclic antidepressants (especially amitriptyline) have been recommended and have the strongest evidence base, but these work modestly and transiently as pain modulators in only some 40% of patients and have significant side effects, including morning hangover and weight gain.

Practical alternatives available in Australia include:

- Tramadol (potentially helping 50%, but start at very low doses and beware possible drug interactions and risk of epilepsy).
- Venlafaxine (inconsistent modest results and only at high doses).
- SSRIs (inconsistent modest results).

Table 9: Evidence-based management recommendations of the European League Against Rheumatism^{a,b,c,d}

General
<ul style="list-style-type: none"> ■ Full understanding of FMS requires comprehensive assessment of pain, function and psychosocial context. Recognise FMS as complex and heterogeneous, with abnormal pain processing and secondary features (level IV) (strength D) ■ Optimal treatment requires an individually tailored, combined non-pharmacological and pharmacological, multidimensional approach (level IV) (strength D)
Non-pharmacological
<ul style="list-style-type: none"> ■ Heated pool treatment (±exercise) (level IIa) (strength B) ■ Individually tailored graduated aerobic and strengthening exercises can help some patients (level IIb) (strength C) ■ CBT can help some patients (level IV) (strength D) ■ Other therapies, such as relaxation, rehabilitation, physiotherapy and psychological support can help (level IIb) (strength C)
Pharmacological
<ul style="list-style-type: none"> ■ Tramadol is recommended (level Ib) (strength A) ■ Simple analgesics and weak opioids may help; steroids and strong opioids are not recommended (level IV) (strength D) ■ Tricyclic antidepressants, SSRIs and SNRIs are recommended (level Ib) (strength A) ■ Tropicisetron, pramipexole and pregabalin are recommended (level Ib) (strength A)

^a Adapted from Carville SF et al. EULAR evidence based recommendations for the management of fibromyalgia syndrome. *Annals of the Rheumatic Diseases* 2008; 67:536-41 with permission from the BMJ Publishing Group.

^b Based on literature published before 2006

^c No weighting given in terms of order of recommendations

^d For explanation of classifications of evidence see Shekelle PG, et al. Clinical guidelines: developing guidelines. *BMJ* 1999; 318:593-96.

Figure 3: The pathway to active coping skills.

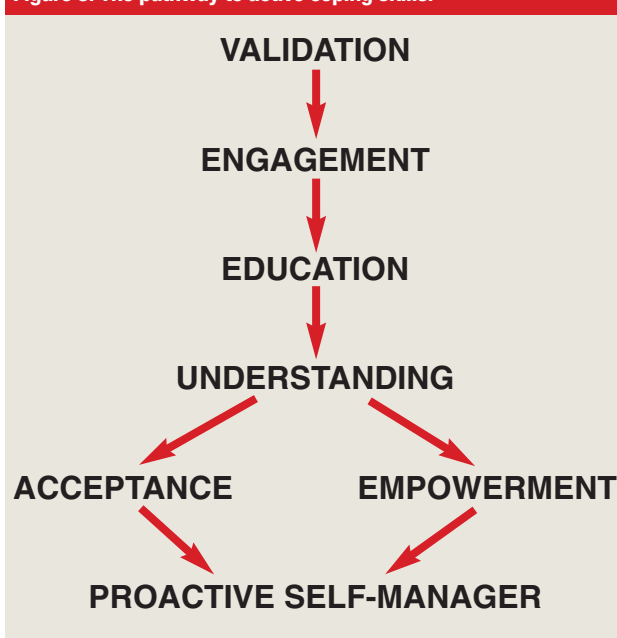


Table 10: A consensus view of the major principles of management of fibromyalgia (preferably in combination)

- Education ('to become expert self-managers')
- Mechanism-specific neuromodulatory medication
- Physical therapy (especially individually tailored exercise)
- Psychosocial interventions (including stress management)

- Pregabalin (in general more potent than gabapentin, potentially significantly helping 30% of patients, with 30% of these developing tolerance; not available under the PBS).

While tramadol is a weak opioid, most of its analgesic effect comes from its pain-modulatory actions.

Transdermal buprenorphine is a recently released unique weak opioid, which theoretically might also have some pain modulatory action. This medication needs to be formally trialled in FMS for both efficacy and long-term outcome, but anecdotally is giving encouraging early results.

A combination of medications working via different mechanisms often gives the best results, implying synergism.

All CNS-acting medications may cause withdrawal reactions if suddenly stopped. Medication tolerance can be managed by 'drug holidays'.

Unfortunately there exists a subgroup who are unable to tolerate any medications; it is hoped that early diagnosis and treatment of FMS will minimise this environmental sensitivity.

Physical therapy

There is some indirect evidence that exercise, principally aerobic, can have a beneficial direct effect on central sensitisation. However, it is also clear that exercise tailored to the individual's fitness level can help secondary deconditioning.

Although active graduated exercise programs are to be encouraged, some patients may require time-limited passive physical therapy for regional problems.

Health professionals supervising any exercise program need to be fully aware of the pathophysiological nature of FMS, in particular, the potential for exercise to flare the condition, given the hyperalgesic tendency of

FMS. Many individuals therefore will be unable to exercise until the sensitivity of their pain system is reduced by other means, principally medication.

As in some patients improved pain control unfortunately continues to be elusive, at most only very gentle exercise will be possible, implying that the common blanket recommendation for moderate intensity aerobic exercise in FMS is unrealistic.

Psychosocial interventions

Independent of any putative role of psychosocial stressors in the genesis of FMS, when a person's pain system has become sensitised, they will then be more sensitive to further stress. Stress-management techniques therefore need to be encouraged, and may include the mind-body techniques of tai chi, meditation and hypnosis.

Interestingly, evolving evidence suggests that formal CBT may only help certain psycho-behavioural subtypes, which are still to be fully defined. However, clinical psychologists with expertise in chronic disease management may be particularly helpful in assisting patients with adjustment and self-management issues.

Other symptom domains

For residual insomnia not related to a primary sleep disorder, standard interventions are required, but also consideration of a trial of pregabalin, as it seems that gabapentoid medications may uniquely increase slow-wave sleep duration, which is frequently reduced in FMS.

As in the chronic fatigue syndrome, residual fatigue remains poorly understood, with graduated exercise and CBT effectively being the only available evidence-based interventions, and then of only modest efficacy. Training in self-pacing is certainly mandatory for the FMS patient with predominant fatigue.

Practice points

- Pain occurring in the absence of a clinically demonstrable peripheral cause does not need to be psychologically based.
- 80% of the digital pressure that first causes pain on the forearm of the (presumably healthy) examiner is a practical bedside method for calibrating 4kg of pressure.
- All patients presenting with musculoskeletal pain, whether localised or generalised, should be examined for the presence of a neurobiologically mediated (central sensitisation) pain disorder, whether primary, secondary or incidental to the presenting complaint.
- FMS is a multidimensional disorder, whose symptom domains need to be identified and ranked so that management can be individually tailored.
- Consequent to recent pathogenetic insights, evidence-based treatments now exist for FMS, which can be moderately effective, especially if multiple modalities are used concurrently.
- FMS needs to be diagnosed early, so that early intervention can facilitate any potential reversibility of the syndrome, or at least minimise its possible deleterious physical and psychosocial consequences.
- Quality patient education appears to be critical for optimal outcome.
- The unstable FMS patient requires careful clinical evaluation to exclude a complicating medical illness.

Online resources

For patients

- Initial handout — Arthritis Australia fact sheets: www.arthritisaustralia.com.au/fact+sheets
- More in depth information — Fibromyalgia Information Foundation: www.myalgia.com
- In-depth information and assistance with local resources — Australian Collaboration Project for Fibromyalgia Best Practice and Education: www.fibromyalgiaaustralia.com.au

For health professionals

- Fibromyalgia Information Foundation: www.myalgia.com
- Arthritis Research and Therapy (see Biology and Therapy of Fibromyalgia review series): www.arthritis-research.com
- Cochrane Reviews: www.cochrane.org/reviews
- Initial and subsequent assessment of symptom domains and function — Fibromyalgia Impact Questionnaire: www.myalgia.com/FIQ/fiq.pdf

GP's contribution



DR ANN PARKER
Bowral, NSW

Case study

MD, 68, has had a long history of marital discord and several depressive episodes. She is obese, with a BMI of 34, and over the past 10 years has developed widespread musculoskeletal pain. She complains of chronic fatigue and of wanting to rest a lot of the time during the day. Her husband is not happy about her resting and this makes her angry. She finds her pain is exacerbated by too much exercise, but she also recognises that she needs some activity.

On examination she has no clinical signs of inflammatory arthritis. She has ten-

derness over at least seven fibromyalgia points and has allodynia over other areas when being examined. Her blood tests show signs of pre-diabetes and fatty liver disease. She has normal ESR, C-reactive protein, FBC, biochemical screen and thyroid function tests.

Some of her joint pains are centred in her lower back, knees and hips, with tenderness over both trochanteric bursae. X-rays of her joints demonstrate mild degenerative change only.

She has tried most analgesics, anti-inflammatories and tricyclic antidepressants. Her management plan includes regular paracetamol, venlafaxine 300mg/day, pregabalin 150mg bd, massage, hydrotherapy, gentle exercise, relaxation techniques and regular psychological counselling.

MD now has a good understanding of her condition and is better at pacing



herself. She remains distressed by her inability to lose weight and her husband's perceived lack of understanding of her condition, and is aware of exacerbations in her pain and fatigue at times of stress.

Questions for the authors

In a susceptible person like MD, would any other specific treatment of her underlying early arthritic pain have been able to prevent the development of fibromyalgia?

As described, MD has a mixed nociceptive and non-nociceptive, chronic widespread pain syndrome, with non-nociceptive factors being currently, and most likely initially, predominant. Regrettably, earlier optimised management of mechanical factors, eg, exercise and glucosamine, at best would have only partially prevented her current situation.

Are there any guidelines to assist with self-pacing in

regard to balancing rest and exercise?

Controversy persists in this area. As a general rule, boom-bust cycles — but also, if at all possible, too little activity — must be avoided. In more severe cases, scheduling throughout the day regular brief periods of gentle home-based physical activity followed by rest is one way to start. Planning of daily activities is crucial.

General questions for the authors

As resistance training has been shown to assist in treatment of depression, is there any benefit from this type of exercise in addition to aerobic exercise in treatment of fibromyalgia?

The evidence base for strength training in FMS is weaker than that for aerobic exercise but still allows the possibility of a subgroup gaining useful modest results, if introduced cautiously.

Is regular paracetamol or use of anti-inflammatories of any benefit for fibromyalgia pain?

Interestingly, both these agents, at least transiently, seem to help some patients, presumably via actions on peripheral nociceptive factors (table 2).

A number of female patients I have seen with fibromyalgia have had similar marital situations involving emotional bullying. Two patients recovered completely when they left these dysfunctional marriages. Has there been any work on the specific problem of chronic unresolved relationship issues causing this pain condition?

Qualitative research confirms that unresolved conflict, occurring in any psychosocial context, can contribute to the development of FMS. However, such stressors are not mandatory and, if present, resolution does not guarantee cure.



How to Treat Quiz

Fibromyalgia syndrome
— 6 June 2008

INSTRUCTIONS

Complete this quiz online and fill in the GP evaluation form to earn 2 CPD or PDP points. We no longer accept quizzes by post or fax.

The mark required to obtain points is 80%. Please note that some questions have more than one correct answer.

ONLINE ONLY

www.australiandoctor.com.au/cpd/ for immediate feedback

1. Which TWO statements regarding the epidemiology of fibromyalgia syndrome (FMS) are correct?

- a) FMS affects about 2% of the population
- b) FMS is about twice as common in men than in women
- c) FMS occurs only in the middle-aged and elderly population
- d) Relatives of patients with FMS have been shown to have an increased incidence of FMS

2. Which TWO statements regarding the pathogenesis of FMS are correct?

- a) Traditionally somatisation theory has been invoked as an explanatory model for the symptoms in FMS
- b) Central sensitisation has emerged as an alternative to somatisation theory as an explanatory model for the generation of pain in FMS
- c) Central sensitisation of nociception takes place in the frontal cortex of the brain
- d) There is no objective evidence of pain-related spinal hyper-excitability in FMS

3. Which TWO statements regarding the American College of Rheumatology (ACR) classification criteria for FMS are correct?

- a) According to the ACR criteria for FMS, the duration of the pain must be at least three months
- b) According to the ACR criteria for FMS, ≥ 11 of 18 tender-point sites must be reported as being painful
- c) According to the ACR criteria, the presence of

a second clinical disorder excludes the diagnosis of FMS

- d) The ACR classification criteria for FMS have been shown to have 95% sensitivity and 90% specificity for diagnosing FMS

4. Sue, 43, has experienced widespread musculoskeletal pain for the past 6-12 months. She describes an aching, mainly in the muscles, which gets worse with activity. Sue has previously consulted you regarding anxiety and insomnia. Which TWO statements regarding the clinical features of FMS are correct?

- a) The pain of FMS only involves the muscles
- b) The pain of FMS is not related to exercise
- c) The tenderness of FMS tends to be more predominant in the truncal and proximal limb regions
- d) In FMS a pattern of asymmetric, migratory multi-regional pain may occur

5. You continue to take a detailed medical history from Sue, before proceeding to a directed physical examination. Which THREE statements regarding symptoms and signs associated with FMS are correct?

- a) FMS is commonly associated with sleep disturbance and daytime fatigue
- b) Many patients with FMS also complain of psychological distress and/or cognitive dysfunction
- c) Musculoskeletal stiffness is not a feature of FMS
- d) Many patients with FMS concomitantly have

one or more additional functional somatic syndromes

6. Which THREE statements regarding the clinical diagnosis of FMS are correct?

- a) A systems review screening for systemic disease must be performed
- b) FMS may be divided into primary and secondary FMS, depending on the presence of concomitant predisposing conditions
- c) The criteria for incomplete FMS include 5-8 out of 18 tender points painful to palpation and one associated feature on history
- d) The ACR tender-point count in an individual with FMS may vary over time

7. Which TWO statements regarding assessment of a patient with features suggestive of FMS are correct?

- a) The core feature of FMS on examination is widespread soft tissue tenderness, especially of muscles
- b) If the patient meets the ACR criteria for FMS on examination of the soft tissues, there is no need to perform a joint examination
- c) Patients who clearly meet the ACR criteria for complete FMS do not require any investigations
- d) The development of new or worsened symptoms in established FMS should never be dismissed as being due to FMS alone

8. After assessing Sue your provisional diagnosis is FMS. You refer her to one of the local rheumatologists for clarification of the

diagnosis and treatment options. Which TWO statements regarding the management of FMS are correct?

- a) Early diagnosis in FMS is important, so that early intervention can facilitate any potential reversibility of the syndrome
- b) Validation of the reality of the patient's symptoms should be avoided, as it risks development of unhelpful illness behaviour
- c) There is still no evidence base for the treatments used in FMS
- d) Optimal treatment requires an individually tailored multidimensional approach

9. Which TWO statements regarding non-pharmacological treatments of FMS are correct?

- a) For people with mild symptoms, providing a diagnosis and practical advice on self-management skills in exercise and stress management may be all that is required
- b) All patients with FMS should be advised to undertake moderate-intensity aerobic exercise
- c) Stress-management techniques should be encouraged
- d) CBT has been shown to be helpful in all psycho-behavioural subtypes with FMS

10. Which THREE medications may be recommended in the treatment of FMS?

- a) Tricyclic antidepressants
- b) Tramadol
- c) Pregabalin
- d) Strong opioids

CPD QUIZ UPDATE

The RACGP now requires that a brief GP evaluation form be completed with every quiz to obtain category 2 CPD or PDP points for the 2008-10 triennium. You can complete this online along with the quiz at www.australiandoctor.com.au. Because this is a requirement, we are no longer able to accept the quiz by post and fax. However, we have included the quiz questions here for those who like to prepare the answers before completing the quiz online.

NEXT WEEK The next How to Treat focuses on the signs and symptoms of bipolar disorder in relation to its clinical phases and diagnostic subtypes, to help clinicians detect and diagnose the different phases of this complex illness. The authors are **Professor Gin S Malhi**, head, discipline of psychological medicine, University of Sydney, and director, CADE Clinic, Royal North Shore Hospital, Sydney, NSW; and **Professor Michael Berk**, University of Melbourne; Orygen Research Centre, Melbourne; Barwon Health and the Geelong Clinic, Swanston Centre, Geelong; and the Mental Health Research Institute, Parkville, Victoria.

Australian Doctor
Education.

HOW TO TREAT Editor: **Dr Wendy Morgan**
Co-ordinator: **Julian McAllan**
Quiz: **Dr Wendy Morgan**