FIBROMYALGIA SYNDROME

Part I: Explaining the general body pains and fatigue of the nineties

Professor HP Meyer

Fibromyalgia syndrome (FMS) is a form of non-articular rheumatism characterised by widespread musculoskeletal pain and stiffness, as well as tenderness on palpation at characteristic sites, called tender points[1]. FMS is the most common cause of widespread pain seen in medical practice and failure to recognise this disorder often leads to over-investigation and over-treatment of the multiple symptoms of the condition[2,3]. FMS has been established as a distinctive diagnosis in the World Health Organisation's disease classification, ICD-10[3].

Brief history

Although the term "fibromyalgia" was not introduced until 1976, this symptom-complex was described as muscular rheumatism, fibrositis, fibromyositis and psychogenic rheumatism as early as the 17th century[4].

In 1904, Gowers used the term *fibrositis* in an article on lumbago, but it was not until the 1960's that the term *fibrositis* was used to describe a well-defined syndrome with generalised aching, tender points at multiple sites, poor sleep and fatigue[5].

Moldofsky and his associates published the findings of a sleep electroencephalogram study in "fibrositis" patients in 1975[6], but the validity of the concept of fibromyalgia remained in doubt until 1981, when the first controlled study of the clinical characteristics of this syndrome by a formal protocol was published by Yunus and his colleagues, thus raising fibromyalgia to a recognisable syndrome level[7].

Epidemiology

Recent studies using the 1990 American College of Rheumatology (ACR) criteria for diagnosis (see later), have shown that at a given point in time, 3-6% of the population (including children) meet criteria for this diagnosis[8,9].

The ACR criteria indicate that pain must be present in all four quadrants of the body for more than three months and that eleven out of eighteen tender points must be painful on examination.

The figure of 3-6% probably represents a conservative estimate of the prevalence of FMS in the population[10]. The prevalence has been estimated to be as high as 6-15% of the population[11]. FMS occurs predominantly among females - only 5-20% of the patients are males[1].

The most common age presentation is 40-50 years, however, FMS has been described among juveniles, as well as among the elderly[12,13]. FMS is a chronic disease with an average symptom duration of 4-7 years at the time of diagnosis[14] and it is prevalent in all ethnic groups.

"Three to six percent of the population meet criteria for diagnosis of Fibromyalgia Syndrome, but this probably represents a conservative estimate of the prevalence of FMS in the population..."

Clinical Features

FMS consists of a central set of core features, namely a general musculoskeletal pain and widespread tenderness over discreet anatomic areas, known as tender points. In addition to these features, patients mostly manifest ancillary features such as fatigue and non-restorative sleep. Other less commonly associated features include subjective swelling, psychological distress, Raynaud's phenomenon, parasthesia, etc.

Pain and tender points

Widespread musculoskeletal pain and tenderness at tender point sites are the cardinal features of FMS[1] *(see Table I and Figure 1)*.

Chronic pain is the integral and most common presenting symptom of FMS and is often present in all the four limbs as well as in the upper and/or lower back.

The shoulder region, including the trapezius muscles and many other areas, are often involved, including the temporo-mandibular and the anterior chest regions.

Chest pain in FMS is sometimes a prominent symptom and may cause confusion with cardiopulmonary disease[15].

The most significant finding related to FMS is the presence of multiple *tender points*[1,7]. Although a dolorimeter has been applied to quantitate the pressure, simple digital pressure of 4kg/cm^2 can be used reliably with practice and is applied to the anatomical areas as described in Table I and

This series of articles concentrates on areas of family medicine that prove problematical in practice. The authors offer new insights and approaches in order to help practitioners address these areas.

Figure 1. (4kg/cm² is approximately the amount of pressure needed to blanche the blood from the thumbnail.)

In normal subjects, these tender points are uncomfortable to firm pressure, but in patients with FMS they are painful (not only tender) with similar pressure and patients mostly produce a wince or withdrawal response[16].

It is important to intersperse the examination of tender points with that of control points as the patient may exhibit an anticipation reaction if every point is associated with pain. The pain-response to palpitation has to be present at eleven of the eighteen well-defined tender point sites *(Fig. 1)*.

The 1990 American College of Rheumatology criteria *(Table I)* for the diagnosis of FMS exhibit a high sensitivity (88,4%) and specificity (81,1%), and reliably discriminate FMS patients from normal controls[1].

Tender points are areas of tenderness occurring in muscle-tendon junctions, bursae and fat pads.

Trigger points typically occur in a more restricted regional pattern and are indicative of myofascial pain syndrome. *Trigger points* refer pain to a "radiation zone" predictable for each *trigger point*. In many patients, the two phenomena of tender and trigger points coexist, possibly reflecting a common etiology.

Fatigue

Most patients with FMS also complain of fatigue which may be severe and debilitating, but is not a universal symptom associated with FMS.

Earlier work by Moldofsky[17] indicated that the fatigue associated with FMS, as well as some of the other symptoms of FMS, was due to a disruption of deep sleep[10].

The fatigue experienced by patients with FMS is often described as a feeling of "general weakness" and this may cause significant dysfunction in daily living. Fatigue, rather than pain and stiffness, may be the presenting feature in some patients.

FMS and the chronic fatigue syndrome (CFS) have many common clinical features and many patients with CFS have chronic musculoskeletal pain and experience sleep disturbance[18]. Meyer reported that 92% of patients with CFS also fulfilled criteria for FMS[14]. Of the patients with FMS, 35% also fulfilled criteria for CFS.

Sleep disturbance

There is a strong association between FMS, sleep disturbance and morning fatigue (an indicator of the quality of sleep), which are both present in about 80% of patients[19]. Poor sleep may be indicated by difficulty in falling asleep, frequent awakening, light sleep and morning fatigue.

The high frequency of insomnia symptoms among FMS patients prompted Moldofsky's study[6] in the sleep laboratory

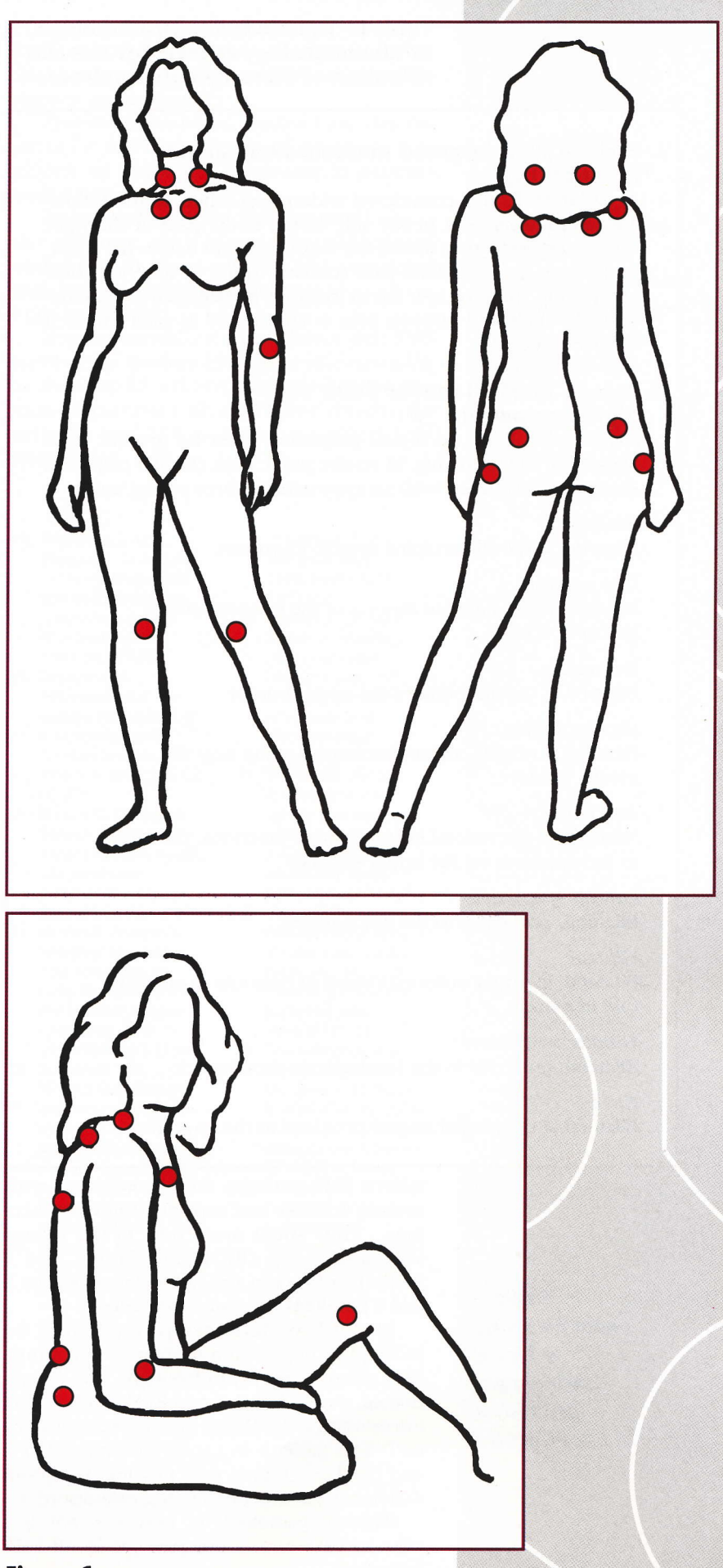

Figure 1:
18 Tender points
(American College of Rheumatology)

Table I: The 1990 American College of Rheumatology criteria for the classification of Fibromyalgia syndrome[1].

1. History of widespread musculo-skeletal pain (>3 months)

Definition: Pain is considered widespread when all the following are present: pain in left side of the body, pain in the right side of the body, pain above the waist and pain below the waist. In addition, axial skeletal pain (cervical spine or anterior chest or thoracic spine or low back) must be present. In this definition, shoulder and buttock pain is considered as pain for each involved side.

2. Pain in 11 of 18 tender point sites on digital palpation.

Definition: Pain, on digital palpation, must be present in at least 11 of the following 18 tender point sites: (Digital palpation should be performed with an approximate force of 4kg/cm^2.)

Occiput:
Bilateral, at the suboccipital muscle insertions.

Low cervical:
Bilateral, at the anterior aspects of the inter-transverse spaces at C5-C7.

Trapezius:
Bilateral at the midpoint of the upper border.

Supraspinatus:
Bilateral at origins, above the scapula spine near the medial border.

2nd rib:
Bilateral, at the second costochondral junctions, just lateral to the junctions on the upper surfaces.

Lateral epicondyle:
Bilateral, 2cm distal to the epicondyles.

Gluteal:
Bilateral, in upper outer quadrants of buttocks in anterior fold of muscle.

Greater trochanter:
Bilateral, posterior to the trochanteric prominence.

Knees:
Bilateral at the medial fat pad proximal to the joint line.

where FMS patients were compared with normal controls and reported more awakenings. They spent more time in the lighter stages of sleep (REM and stage 1 and 2 NREM) and less in the deep stages (stages 3 and 4 non-REM) of restorative sleep.

Musculoskeletal symptoms could be induced by deprivation of stages 3 and 4 non-REM sleep in healthy individuals. The disruption of stages 3 and 4 non-REM sleep (alpha intrusion of delta sleep) has also been reported in FMS patients in a study of Hamm *et al*[20], and has been linked to a possible seretonin deficiency pathogenesis in the FMS disorder.

This sleep-anomaly is, however, not specific to FMS and is not present in all FMS patients.

In a study by Moriss *et al*[21], similar sleep disturbances (alpha rhythm in stages 3 and 4 sleep) were found in the majority of CFS patients.

Patients with FMS have a higher incidence of psychiatric disorders.

Psychological considerations and affective disorders

No specific pathophysiological mechanism has been found to cause FMS. Therefore, the syndrome has sometimes been understood as primarily psychological in origin - being a purely psychogenic disorder or a somatic expression of major affective disorder[22]. However, the search for underlying psychological mechanisms in FMS has been inconclusive.

Patients with FMS often show certain personality similarities - setting high standards and being demanding of themselves and of others. They are often very effective in their chosen field of activity and have unusual loyalty from employers and family - driving themselves harder than most people[22].

Patients with FMS have a higher incidence of psychiatric disorders, (including depression), and controversy surrounds the relationship between these psychiatric conditions and the physical symptoms[10]. Psychiatric symptoms may occur largely as a consequence of the chronic pain, fatigue and sleep disturbance, and current understanding is that FMS is not considered to be a reflection of psychiatric disorder[23]. It should not be regarded as a somatic illness secondary to a psychiatric disorder, and the association with a psychiatric disorder is probably not a causal one[23].

Despite the increased prevalence of depression in FMS patients, the majority of FMS patients are not depressed[14]. Recent studies have demonstrated that there are no differences between FMS and rheumatoid arthritis patients, concerning the prevalence of depression[24].

The vast majority of FMS patients do not meet criteria for current psychiatric diagnosis, and psychological symptoms in FMS patients may be present in many patients with chronic medical illnesses, particularly painful illnesses[23]. The fact that psychosocial factors could be important in the development and maintenance of many "physical" or "organic" disorders (including FMS), is widely accepted today.

Neurological symptoms

Patients with FMS often complain of chronic headaches[19] as well as chronic pain in the axial skeleton[19,22]. In a study by Simms and Goldenberg[25], it was found that more than 80% of patients with FMS complained of numbness and parethesiae without objective neurological findings[25]. These symptoms were often bilateral and correlated with other symptoms of FMS. This clinical presentation may suggest carpal tunnel syndrome or a neurological disorder, and clinicians should be judicious in the use of expensive and/or invasive neurodiagnostic testing[25].

Other symptoms

Loudness-intolerance, vestibular hyper-reactivity and dizziness was found in ±40% of FMS patients in a study by Gerster and Hadj-Djilani[26].

FMS patients often have other "functional" syndromes such as irritable-bowel syndrome, irritable bladder, dysmenorrhoea, migraine headaches and restless-legs syndrome[19,27].

Periodic limb-movement disorder, diagnosed by a history of brief and sudden jerking movements at night, occurs in about 20% of patients[28]. In a study by Triadafilopoulus *et al*, 60% of FMS patients had gastrointestinal symptoms suggestive of irritable-bowel syndrome[29].

In FMS patients, a 75% incidence of echocardiographic evidence of mitral valve prolapse has been detected as well as 40 to 70% incidence of oesophageal dysmotility[10]. Patients with fibromyalgia also have a higher incidence of dysmenorrhoea, urinary frequency and urgency[10].

Questionnaire-based studies have demonstrated a 30-35% incidence of symptoms suggestive of Raynaud's Syndrome in patients with FMS[30].

Bennett *et al*, have also provided objective evidence of an increase in cold-induced vasospasm in these patients and correlated with this a possible up-regulation of α_2 adrenergic receptors[31].

Regular surveillance has shown that FMS hardly ever evolves into other diseases such as rheumatoid arthritis, but it is not uncommon for patients with established rheumatoid arthritis and SLE to have associated FMS symptoms[31]. ●

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References

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