

**When  
Moving  
Hurts**



**Assess  
Understand  
Take Action**

## **GLOBAL YEAR AGAINST MUSCULOSKELETAL PAIN**

OCTOBER 2009 – OCTOBER 2010

### **Fibromyalgia**

#### **Introduction**

Fibromyalgia syndrome (FM) is defined as a common rheumatological syndrome characterized by chronic, diffuse musculoskeletal pain and tenderness with a number of associated symptoms, among which sleep disturbances, fatigue, and affective dysfunction are particularly frequent.

#### **Epidemiology and Economics**

- Affects 2–10% of the general population, in all ages, ethnic groups, and cultures.
- Its gender distribution is up to seven times more common in females than males.
- FM's impact on an individual's quality of life and physical function is substantial.
- In the United States, about 15% of patients receive disability funding because of their symptoms.

#### **Pathophysiology**

The pathophysiology of FM is not completely clarified, but a number of neuroendocrine, neurotransmitter-related, and neurosensory disturbances, as well as genetic predisposition, have been implicated in its generation.

- *Neuroendocrine*: Dysfunction of the hypothalamic-pituitary-adrenal axis, including blunted cortisol responses; abnormal growth hormone regulation
- *Neurotransmitter*: Decreased serotonin in the central nervous system; elevated levels of substance P and nerve growth factor in the spinal fluid
- *Neurosensory*: Central amplification of pain and/or reduced antinociception (central sensitization, abnormalities of descending inhibitory pain pathways)
- *Genetic*: Strong familial aggregation for FM; evidence for a role of polymorphisms of genes in the serotonergic, dopaminergic, and catecholaminergic systems in the etiology of FM

#### **Clinical Features**

- FM has either a gradual or a post-traumatic onset
- The pain is described as a persistent, diffuse, deep, aching, throbbing, sensation in muscles and is most often continuous
- Clinical symptoms associated with FM are affective dysfunction, cognitive deficits, short-term memory loss, headache, nonrestorative sleep, and daytime tiredness resembling physical fatigue
- A number of clinical conditions occur more frequently in FM than in the general population (comorbidities):
  - depression
  - anxiety
  - irritable bowel syndrome (IBS)
  - fatigue, including chronic fatigue syndrome
  - sleep disturbances
  - dysmenorrhea, interstitial cystitis, other rheumatic conditions, and temporomandibular joint disorder
- FM patients have abnormal reactivity to painful stimuli:
  - hypersensitivity to painful stimuli applied to somatic structures, not only in painful sites but also in normal control areas

- lower pain thresholds to thermal, mechanical, electrical and chemical stimuli
- enhanced temporal summation (pain on repeated stimulation is greater)
- after infusion of hypertonic saline, muscle pain with a longer duration and referred pain that spreads to a larger area than in controls
- Abnormal responses to pain seen on functional brain neuroimaging:
  - mixed findings for several brain regions
  - decreased thalamic blood flow
  - accelerated brain gray matter loss

### Diagnostic Criteria

The present criteria for FM diagnosis are those established by the American College of Rheumatology Committee in 1990:

- 1) A history of widespread pain (involving all 4 limbs and the trunk) of at least 3 months' duration, and:
- 2) Tenderness to digital palpation (with a pressure of 4 kg) in at least 11 of 18 (9 symmetrical) predetermined body districts called tender points (TePs) (a tender point is defined as a site of exquisite tenderness in soft tissues, in contrast to the trigger points of myofascial pain syndrome).

### Diagnosis and Treatment

- FM does not threaten the patient's life but can cause severe disability and thus substantially compromise quality of life. Complete resolution of symptoms is almost never achieved, but significant improvement can be obtained with adequate therapy.
- Management of FM is typically multimodal:
  - education for affected individuals, family, and society
  - encouragement for the patient to take an active role in self-care
  - psychological or psychiatric support
  - physical therapy, primarily with an exercise program (aerobic, strengthening), with the addition of physical modalities, such as massage or TENS, as needed
  - moderate doses of medications proven to be effective:
    - i. low-dose tricyclic antidepressants (amitriptyline)
    - ii. dual serotonin-norepinephrine reuptake inhibitors
    - iii. selective serotonin reuptake inhibitors
    - iv. antiepileptics (gabapentin, pregabalin)
  - regular monitoring and follow-up

### References

1. Goldenberg DL, Burckhardt C, Crofford L. Management of fibromyalgia syndrome. *JAMA* 2004;292:2388–95.
2. Russell IJ, Bieber CS. Myofascial pain and fibromyalgia syndrome. In: McMahon SB, Koltzenburg M, editors. *Melzack and Wall's textbook of pain*, 5th ed. Edinburgh: Churchill Livingstone; 2005. p. 669–81.

