Fibromyalgia

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PEP 4370
Overview

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• Epidemiology/Prevalence
• Causes
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• Treatment
• Effects of Exercise
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Definition

• **BREAK IT DOWN:**
  - Connective tissues contain **Fibrocytes** (Fiber Cells)
  - Muscles contain **Myocytes** (muscle cells)
  - The Latin word for pain is “**algia**”

**Meaning:** Pain that originates in the connective tissues and muscles of the body
Definition/Facts

- Also known as Fibromyalgia Syndrome (FMS)
  - A debilitating condition characterized by widespread muscle pain, fatigue, and tenderness throughout the whole body
  - A syndrome is a cluster of symptoms
- Fibromyalgia (FM) is known as a Rheumatic Disorder
- Not a form of arthritis- Does not cause widespread inflammation or damage to joints, muscles or other tissues
- Initially described in Europe in mid-19th century; officially recognized as a syndrome by the World Health Organization in 1993
Epidemiology/Prevalence

- **UNITED STATES:**
  - 2-4% of Americans are diagnosed
  - Estimated to be 5-10 million people
  - More common than rheumatoid arthritis

- **WORLDWIDE:**
  - Prevalence is estimated to be between 3-6% of the world population

- **GENDER/AGE:**
  - About 80% of afflicted are women between ages of 20-55 years old
  - Female to male ratio: 7:1; women 10 times more likely to get it than men
  - Prevalence increases with age; Most people diagnosed in middle age
  - Males and children can get it, though not as likely
Causes

- Main cause is unknown
- Genetics - considered to be main factor
  - Certain types of genes that predispose people
- Usually some triggering factor, such as:
  - Spine disorders
  - Arthritis
  - Infections
  - Physical or emotional trauma
  - Physical/emotional stressors
Causes

• Other theories include:
  • Muscle abnormalities
  • Neuroendocrine and autonomic system regulation disorders
  • Abnormal substance P levels
  • Elevated nerve growth factor levels
  • Central sensitization
Causes

• Whatever the underlying cause, “the result is changes in the way the body communicates with the spinal cord and brain associated with altered levels of chemicals and proteins in the central nervous system. For the person with fibromyalgia, it is as though the “volume control” is turned up too high in the brain's pain processing areas,” American College of Rheumatology.

• [http://www.youtube.com/watch?v=dGt6yiB_RSs&NR=1&feature=fvwp](http://www.youtube.com/watch?v=dGt6yiB_RSs&NR=1&feature=fvwp)
Clinical Aspects: Symptoms

Primary Symptoms

• Pain and tenderness at specific anatomical locations (tender points)
• Sleep disturbance
• Chronic fatigue
• Morning stiffness
• Headaches
• Paresthesia in the extremities
• altered perception of physical exertion
• Depression
• Anxiety

Secondary Symptoms

• Impaired functional ability
• Poor physical fitness
• Social isolation
• Low self-esteem
• Poor quality of life

• These symptoms are usually precipitated by Primary Symptoms

Symptoms can vary depending on weather, stress, physical activity, or the time of day
<table>
<thead>
<tr>
<th>Manifestation</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic widespread pain/tender points</td>
<td>100</td>
</tr>
<tr>
<td>Arthralgia, myalgia</td>
<td>80</td>
</tr>
<tr>
<td>Nonrestorative sleep</td>
<td>80</td>
</tr>
<tr>
<td>Fatigue</td>
<td>70</td>
</tr>
<tr>
<td>Tension Headache</td>
<td>53</td>
</tr>
<tr>
<td>Functional bowel disease</td>
<td>40</td>
</tr>
<tr>
<td>Subjective numbness, burning</td>
<td>35</td>
</tr>
<tr>
<td>Subjective significant “brain fog”</td>
<td>20</td>
</tr>
<tr>
<td>Significant psychopathology</td>
<td>20</td>
</tr>
<tr>
<td>Periodic limb movement syndrome</td>
<td>15</td>
</tr>
</tbody>
</table>
Co-existing Conditions

• People with FM may also have a number of conditions as well, including:
  • Chronic Fatigue Syndrome
  • Depression
  • Endometriosis
  • Headaches
  • Irritable Bowel Syndrome
  • Lupus
  • Osteoarthritis
  • Post-traumatic Stress Disorder
  • Restless Legs Syndrome
  • Rheumatoid Arthritis
Clinical Aspects: Diagnosis

• There are no existing laboratory tests to diagnose FM
• X-rays, blood tests, or muscle biopsies do not confirm FM
• Tests to rule out other diseases such as rheumatoid arthritis or lupus
• Diagnosis is based on patient symptoms and physical examination
Clinical Aspects: Diagnosis

Criteria established by American College of Rheumatology (1990):

1. Widespread pain lasting at least 3 months
2. At least 11 positive tender points out of a total possible of 18
   • Tender Points- specific places on body that are checked for tenderness
   • Amount of pressure is usually just enough to whiten doctor’s fingernail bed (about 4 kg)
Clinical Aspects:
Tests/Evaluations

- Fibromyalgia Impact Questionnaire (FIQ)
  - Purpose is to assess the current health of those with FM
  - Measures:
    - physical functioning,
    - work status (missed days of work and job difficulty)
    - depression
    - anxiety
    - morning tiredness
    - pain,
    - stiffness
    - fatigue
    - well-being over the past week

Each subset is scored differently; then the sum added together. Higher scores mean that FM has a higher impact on functioning.
Clinical Aspects: Complications

- FM is not a progressive disease and generally does not lead to other conditions or diseases
- Symptoms (such as pain, depression, and lack of sleep) interfere with everyday life:
  - Ability to function
  - Ability to maintain relationships
  - Hard to do simple chores and tasks
  - Lack of concentration
  - Increased emotional strain
- Since FM is often misunderstood, the patient may be frustrated of dealing with a misunderstood condition
Treatment: Medicine

• Although there is no cure for Fibromyalgia, research suggests that treatment should be focused on reducing the symptoms
• Medication can be used as interventions for sleeplessness, pain, depression, and anxiety
### Treatment: Medicine

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antidepressants</td>
<td>• Duloxetine (Cymbalta)*</td>
<td>• Relieve depression, sleep disorders, pain</td>
</tr>
<tr>
<td></td>
<td>• Fluoxetine (Prozac)</td>
<td>• May be combined with amitriptyline to help with sleep</td>
</tr>
<tr>
<td>Anti-seizure</td>
<td>• Pregabalin (Lyrica)*</td>
<td>• Used to treat pain</td>
</tr>
<tr>
<td>Tricyclic Compounds</td>
<td>• Cyclobenzaprine</td>
<td>• Low doses shown to provide best treatment for pain and improved sleep patterns</td>
</tr>
<tr>
<td></td>
<td>• Amitriptyline</td>
<td></td>
</tr>
<tr>
<td>Dual Reuptake Inhibitors</td>
<td>• Venlafaxine</td>
<td>• Work similarly to tricyclic compounds</td>
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<tr>
<td></td>
<td>• Tramadol</td>
<td></td>
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<tr>
<td>Sleep Medications</td>
<td>• Zolpidem</td>
<td>• Rapid-acting</td>
</tr>
<tr>
<td></td>
<td>• Trazodone</td>
<td>• Longer-acting</td>
</tr>
<tr>
<td></td>
<td>• Clonazepram</td>
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</table>

*Denotes drugs approved by FDA to treat patients with Fibromyalgia*
Treatment: Alternative Therapies

- Other treatment options to treat symptoms may include:
  - Exercise programs
  - Client education programs
  - Cognitive behavioral therapy
  - Hypnosis
  - Acupuncture
  - Physical therapy
  - Chiropractic Care
  - Massage therapy
Treatment: Multidisciplinary

- Multidisciplinary approaches may be better than any single approach when treating Fibromyalgia
- Primary components should include:
  1. Education about FM
     - Diagnosis and prognosis
  2. Sleep improvement
  3. Psychological
     - Meditation, relaxation techniques, cognitive behavior therapy, etc.
  4. Medicine (antidepressants, anti-inflammatories, etc.)
  5. Exercise
Effects of FM on Exercise Response

- FM symptoms directly and indirectly affect the acute response to exercise
- Pain, general fatigue, and altered perception of exertion generally contribute to largely sedentary and deconditioned individuals
- Timing and types of exercise may be limited due to:
  - Morning stiffness
  - Exaggerated DOMS with poor recovery from exercise
  - Difficulty with the use of arms in elevated positions
Effects of FM on Exercise Response

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- Activities that are poorly tolerated include:
  - Eccentric muscle contraction
  - Sustained overhead activities
  - Vigorous/High impact activities
Effects of Medications on Exercise

• The majority of medications commonly used by patients with FM are not likely to alter test results and/or exercise
Effects of Acute Exercise Training

- For some patients, there is an increase in myalgia after exercise
- May contribute to morning stiffness if done in the morning
- Exercise may initially make it difficult to do other activities afterwards
Effects of Chronic Exercise Training

- Shown to produce same general benefits as with apparently healthy individuals

- Other benefits include:
  - Reduced number of tender points
  - Decreased pain at tender points
  - Decreased general pain
  - Improved sleep and less fatigue

- Fewer feelings of helplessness/hopelessness
- More frequent and meaningful social interactions
- Lessened impact of disease on daily activity
Exercise Testing

- Those with FM tend to be sedentary and deconditioned with a poor ability to sustain exercise for a long period of time
- **Muscular endurance tests** (6 and 12 minute walk tests) may be more beneficial for developing a prescription
- **Flexibility** - simple testing (sit and reach, goniometry) can show specific areas that would benefit from routine stretching
Exercise Testing

• **Strength training** - 1 RM and grip strength may give indication of functional strength, and may help to identify a place to start with weights in a strength-training program

• **Aerobic testing** is symptom rather than metabolically limited in FM
  
  • Submax testing, graded exercise protocols with smaller increments (Naughton, Balke-Ware) and ramp protocols
  
  • Walking or cycle tests also recommended
Exercise Testing

• Special Considerations
  • Individuals tend to reach peak instead of maximal effort with aerobic testing
  • Individuals with gluteal tender points may have difficulty with toleration with a standard ergometer
    • Consider a recumbent cycle ergometer in this case
  • Schedule exercise testing on a day when no other activities are planned, since the client may be worn out after testing
Exercise Prescription

- Primarily consist of low-to-moderate intensity aerobic activities
- Non- or low-impact activities that minimize eccentric contractions
- Programs involving lower body (since small muscles in shoulder to not tolerate sustained overhead activities)
- Tai chi and yoga have been shown beneficial and should be included in a program
- Stretching and strength training should be added to a program, though they have not been shown to effect FM individually
Exercise Prescription

- Optimal dose of aerobic is not known
- Indications show the need to begin slowly and gradually increase work rate
- Though requested to exercise 3 times/week, many patients prefer or self-select exercise twice a week
- Advisable to conduct sessions under supervision or in group settings to improve adherence
Exercise and FM

• For those who currently do not exercise:
  • Great benefits just by simply increasing level of day-to-day activities

• Remind those with FM that exercise does not require sophisticated or expensive equipment:
  • Walking
  • Light strength training
    • Resistance bands and tubing
  • Mild Stretching
Exercise and FM

- Individuals with FM may fear physical exertion
- REALITY IS- cannot afford to NOT exercise
- Key to success is consistency over time
- During flare-ups, it is OK to back off but do not let inactivity continue for a long period of time
- “Exercise should not be viewed as a quick fix, but as a permanent, lifestyle change,” Bryant and Peterson.
- Exercise should be designed to promote health and wellness
Summary and Conclusion

• Fibromyalgia is a debilitating disease that leaves many patients deconditioned and sedentary
• The exact cause of FM is unknown
• Medications treat the symptoms, not the disease
• Research has shown that a multidisciplinary treatment program is the best when treating FM, including exercise
• Exercise has shown to make significant increases in the effect of patients’ symptoms and overall functionality
References


