OBJECTIVES

After reading Understanding Fibromyalgia, the reader will be able to:

1. Identify the hallmark symptoms of fibromyalgia.
2. Explain the potential causes of the disorder.
3. Identify and list four tender point sites.
4. Know diagnostic criteria for fibromyalgia established by the American College of Rheumatology.
5. Describe pharmacological and non-pharmacological approaches in treating fibromyalgia.
6. List three comorbidities.
WHAT IS FIBROMYALGIA?

Nicole is not alone in her frustration. Over six million Americans have been diagnosed with fibromyalgia. The American College of Rheumatology reports that as many as one in fifty Americans suffer from fibromyalgia. The disorder ranks second after osteoporosis as one of the most common complaints that are seen by rheumatologists.

Research has shown that clinicians often struggle to diagnose a patient with fibromyalgia; people with this disorder typically see several doctors before receiving the final diagnosis. Considerable studies have been conducted to identify the social impact, symptoms, causes and treatment options for this demoralizing condition (Harth et al., 2007).

Social Impact

To better understand the societal significance of fibromyalgia, let's first examine a few quick facts regarding the disorder:

- Fibromyalgia costs the United States approximately $12-$14 billion annually.
- Fibromyalgia accounts for a loss of 1 to 2% of the nation's overall productivity.

The National Fibromyalgia Association adds that employers spend an additional $50 to $100 for every dollar spent on fibromyalgia claims. This excess money is spent on both direct and indirect expenses related to the disorder.

The economic burden caused by fibromyalgia is also in part because the annual cost for claimants was more than double the amount of the typical insurance beneficiary. Failure to properly diagnose fibromyalgia results in additional visits to other doctors and specialists, exasperating the expense to the patients and insurance companies.
**SYMPTOMS AND PATHOPHYSIOLOGY**

The etiology of this disorder continues to be a priority for members of the medical community. The word “fibromyalgia” is a combination of the Latin root “fibro” meaning connective tissue and the Greek term “myo” for muscle and “algia” for pain. Fibromyalgia is referred to as a syndrome rather than a disease because it is a simultaneous collection of symptoms that aren’t related to a single identifiable cause.

**Symptoms**

Fibromyalgia is a physical disorder, characterized by the chief complaints of: musculoskeletal pain throughout the body, fatigue and sleep disturbances. These three conditions are frequently accompanied by symptoms such as:

- Difficulty concentrating
- Sensational changes to touch, light and sound
- Weakness
- Depression
- Anxiety
- Stress
- Cramping
- Cognitive difficulties

**PAIN**

The pain is described as: shooting, stabbing, throbbing, twitching and aching. The pain is usually worse in the morning for most patients. Additionally, there are neurological symptoms such as tingling, burning and numbness that are present.

**FATIGUE**

Fatigue is another primary symptom that can often be the most disabling. This type of fatigue is more than just a general tired feeling; it is complete exhaustion that interferes with personal, occupational and social activities.

**SLEEP DISTURBANCES**

Sleep disturbances exasperate the fatigue associated with fibromyalgia. This sleep disorder prevents people from getting deep, restorative sleep. Electroencephalographic studies have revealed abnormalities in the stage four deep sleep cycles. This results in frequent episodes of a wake-like brain activity during sleep. Fatigue caused by lack of sleep is most intense in the morning and can be quite disorientating for people.

The three hallmark symptoms of pain, fatigue and sleep disturbances are commonly accompanied by the associated feelings of apprehension, anxiety and stress. These are the emotional components that surround the physical symptoms caused by this debilitating condition. Moreover, this unfortunate triad can frequently lead to a deep-seated feeling of depression (Johnson et al., 2009).
Frequent symptoms associated with Fibromyalgia (WikiCommons – Human Body Diagrams):

Causes

The exact causes of fibromyalgia remain a mystery. The etiology of the disorder continues to be the subject of ongoing medical research. The National Fibromyalgia Association reported that a recent study has demonstrated that genetic factors may cause people to be susceptible to fibromyalgia. Current research is also examining defects in the central nervous system through imaging studies. The studies are investigating how the brain and spinal cord process pain (Peterson, 2007).

Anomalous Neurotransmitter Levels

Research is also examining the role of biochemical imbalances that are a factor in the dysregulation of physiological abnormalities of fibromyalgia patients. The abnormality of the body’s neurotransmitters is thought to be involved in the pathogenesis of the disorder. Evidence suggests that people with fibromyalgia have low levels of cortisol, serotonin, growth hormones and norepinephrine. Increased levels of substance P in the spinal cord are also present in fibromyalgia patients.

Serotonin in the brain contributes to the regulation of mood and well-being, while norepinephrine also regulates mood and stimulates the body’s autonomic nervous system in response to stress. Substance P is a neurotransmitter that intensifies the perception of pain. These neurotransmitters in the brain act as messengers that transmit signals from a neuron to a target cell across a synapse. The combination of low serotonin and high substance P levels increases the body’s hypersensitivity to pain (Peterson, 2007).
Other Findings

Scientists also associate the onset of fibromyalgia with traumatic injury, such as an accident, or illness that incites an ongoing physiological issue within the body. Risk factors also include chronic stress, female gender, and a family history of fibromyalgia.

Research has shown that most people diagnosed with fibromyalgia are middle-aged, but symptoms are frequently present earlier in life. Additionally, approximately 80% to 90% of people with this disorder are women (NIAMS study, 2009).

DIAGNOSIS

Doctors often attempt to rule out other causes of symptoms before diagnosing fibromyalgia. There are no x-rays or blood tests that clearly identify this disorder; however, complete blood counts, hepatic/renal panels and metabolic panels are conducted to illuminate other possible conditions.

In 1990, The American College of Rheumatology established diagnostic criteria for fibromyalgia. These criteria include widespread pain in all four of the body's quadrants for a minimum duration of three months. Pain must also be present in at least 11 of the designated 18 tender points in the body. These tender points are located in areas of the body where muscles are attached to joints. Common areas include: the neck, lower back, shoulder blades, elbows, knees, hips, chest, buttocks and biceps.

Tender Point Areas

American College of Rheumatology

Tender point sensitivities are assessed by applying pressure with the first two fingers of the hand, or the thumb. Tender points are bilaterally palpated at each side of the body. The examiner applies firm pressure until the patient tells him to stop or shows overt signs of pain. The patient then notifies the examiner whether the palpitation was “tender” or “painful.”

A positive rating of the tender point will be given if the patient affirms that the point was “painful,” not just “tender.” While there is some subjectivity to this method, it continues to be useful in the clinical assessment of the disorder (Nielsen, 2007). The tender point observations are documented in the patient’s medical record utilizing the universal fibromyalgia pain scale assessment:
FIBROMYALGIA TENDER POINT PAIN SCALE

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<th>Scale</th>
<th>Description</th>
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<tr>
<td>0</td>
<td>No tenderness</td>
</tr>
<tr>
<td>1</td>
<td>Tenderness with no withdraw</td>
</tr>
<tr>
<td>2</td>
<td>Tenderness with withdrawal</td>
</tr>
<tr>
<td>3</td>
<td>Tenderness with pronounced withdrawal</td>
</tr>
<tr>
<td>4</td>
<td>Untouchable due to pain</td>
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</tbody>
</table>

Comorbidities

Before diagnosing a patient with fibromyalgia, doctors investigate several other possible related conditions. The symptoms of the following conditions often mimic fibromyalgia:

- **Chronic Fatigue Syndrome** – this disorder is characterized by chronic pain as well as sleep and mood disturbances.
- **Polyarthritis Rheumatica** – this condition presents pain in the back, hips, shoulders and neck and generally occurs in people over the age of 50.
- **Myofascial Pain** – this muscular pain is accompanied by fatigue and lack of sleep. The prognosis of this pain is often excellent when treated with NSAIDs, stretching, moist heat and massage.

Treatment

The treatment of fibromyalgia involves a multidisciplinary approach that includes family physicians, general internists, rheumatologists, physical therapists, occupational therapists, nursing staff and other healthcare professionals. The treatment program will also include a multifaceted approach that is managed with medication, patient education, physical therapy, aerobic conditioning, supplementation and alternative therapies.

**PHARMACOLOGICAL MANAGEMENT**

The pharmacological treatment of fibromyalgia utilizes a combination of medications to include antidepressants, benzodiazepines, muscle relaxants, analgesics and nonsteroidal anti-inflammatory drugs. These drugs are used to help minimize and treat the known symptoms. The goals of this treatment are to control pain, improve sleep and assist in daily functioning.

The U.S. Food and Drug Administration has approved drugs such as pregabalin (Lyrica), milnaespran (Savella) and duloxetine (Cymbalta) to treat fibromyalgia. Randomized placebo-controlled trials of the drug Lyrica have revealed a reduction in pain. Additionally, pregabalin and duloxetine have had a positive impact on controlling sleep and the overall quality of life in fibromyalgia patients (Traynor et al., 2011).

**Antidepressants**

Antidepressants elevate chemicals in the brain, such as serotonin and norepinephrine. An increase in the production of these chemicals has been known to reduce pain. Meta-analysis research has shown
that antidepressants have had the greatest impact on blocking some of the symptoms associated with fibromyalgia when compared to other classes of medications (Hauser et al., 2009) (Traynor et al., 2011).

In these meta-analysis comparisons, tricyclic antidepressants were more effective than the placebo group for all clinical outcomes such as: improving sleep, lowering pain symptoms and helping to control pain.

The common categories of antidepressants that are frequently prescribed to fibromyalgia patients include:

- **Tricyclic antidepressants (TCAs)** - These drugs help to relax muscles, while heightening pain killing endorphins in the body. Examples of this medication include: cyclobenzaprine (Flexeril, Flexiban), amitriptyline hydrochloride (Elavil, Endep) and nortriptyline (Pamelor, Aventyl).

- **Selective Serotonin Reuptake Inhibitors (SSRIs)** - This newer type of antidepressant aims at fighting fatigue and elevating the mood of fibromyalgia patients. Examples of this drug include: paroxetine (Paxil), escitalopram (Lexapro) and fluoxetine (Prozac).

- **Mixed Reuptake Inhibitors** - These antidepressants increase serotonin and norepinephrine. Studies have shown that these drugs have been more effective at helping pain than SSRIs due to the role that norepinephrine plays in the transmission of pain. (Traynor et al., 2011). Examples of these drugs include: venlafaxine (Effexor) and duloxetine (Savella).

**Benzodiazepines**

These drugs are prescribed to fibromyalgia patients to relax painful muscles. This class of drugs enhances the neurotransmitter gamma-aminobutyric acid (GAMA), which results in relaxing the muscles of the body and has anti-anxiety and sleep-inducing effects.

The American Psychological Association warns that this choice of pharmacotherapy is often best suited for short-term use due to concerns about withdrawal and dependence. Examples include: diazepam (Valium) and clonazepam (Klonopin).

**Muscle Relaxants**

Muscle relaxants are sometimes prescribed in low doses with TCAs or SSRIs. Meta-analysis has revealed favorable outcomes in fibromyalgia patients who were administered muscle relaxants as part of a treatment plan. The studies included 312 patients who were administered daily doses of 10 or 30 mg of cyclobenzaprine. Meta-analysis of these five studies revealed that fibromyalgia patients treated with the muscle relaxant-cyclobenzaprine were three times more likely to report overall improvement of symptoms than the placebo group (Traynor et al., 2011) (Peterson, 2007).

Examples of muscle relaxants prescribed for fibromyalgia patients include: cyclobenzaprine (Flexeril), carisoprodol (Soma), tizadine (Zanaflex) and orphenadrine citrate (Norflex).

**Analgesics**

These are painkillers that range from over-the-counter medications (Tylenol) to stronger prescription narcotics. The goal of this class of medications is to block pain signals going to the brain. Narcotic painkillers are typically prescribed short-term due to their tendency to become addictive in some patients.

During a 2006 meta-analysis conducted by Furlan et al, patients were administered an opioid painkiller for chronic pain related to fibromyalgia and other non-cancer conditions for a period of 8.8 weeks. The results of this study concluded that opioids were effective for pain relief and improving daily functioning; however, some experts discourage the use of opioids due to their concerns about potential dependence (Furlan, et al.) (Traynor et al., 2011).
Examples of narcotic analgesics include: hydrocodone (Vicodin), oxycodone (Percocet), MScontin (Morphine) and propoxyphene (Darvon).

**Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)**

These drugs are used to decrease inflammation and relieve pain. They work by inhibiting prostaglandins, which play a role in pain and inflammation in the body. The Furlan et al study showed that NSAIDs were not as effective as narcotic analgesics for relieving pain (Furlan et al., 2006). This is in part because inflammation is not a typical characteristic symptom of fibromyalgia (Traynor, 2011). Examples of NSAIDs include: ibuprofen (Motrin, Advil) and naproxen sodium (Aleve, Anaprox).

**MANAGING FIBROMYALGIA**

Nonpharmacological treatment of fibromyalgia is also used to help alleviate the symptoms. Patient education plays an important role in minimizing the impact of fibromyalgia, notes the National Fibromyalgia Association. An effective patient self-management plan includes frequent exercise, proper sleeping habits and alternative therapies.

**Cardiovascular exercise** – The American College of Sports Medicine recommends 30 minutes of moderate physical activity at least five days a week. While this may be difficult for people who are in pain, studies have shown that people with fibromyalgia who participate in exercise have decreased pain, improved mood and enhanced physical function (Peterson, 2007). Additionally, a 2008 study, reported by the Journal of American Physical Therapy Association also revealed that a frequent strength-training routine assisted the overall management of fibromyalgia symptoms (Brosseu et al, 2008).

**Improving sleep** – The Mayo Clinic reported that fibromyalgia patients should implement a sleeping routine of going to bed and getting up at the same time every day. Additional sleeping tips include avoiding caffeine and large meals before bed and keeping the sleeping area free of distractions.

**Adjunctive therapies** – People with fibromyalgia often utilize a variety of complementary therapies to help manage symptoms. These forms of treatment can also help to add to a patient’s sense of control over their disorder. Complementary therapies include a wide range of modalities to help manage pain, alleviate muscle stiffness and reduce stress (Wilke, 2010).

**ALTERNATIVE AND COMPLEMENTARY THERAPIES**

- Physical therapy
- Occupational therapy
- Psychological support
- Meditation and guided imagery
- Acupuncture
- Topical remedies for pain
- Massage
- Myofascial release
- Supplementation
- Cognitive therapy
- Aromatherapy
- Biofeedback
SUMMARY

Despite the overt symptoms of widespread muscle pain and fatigue, fibromyalgia can be difficult to diagnose. For the most part, its fundamental causes remain unknown; however, pharmacological and adjunctive therapies can often help to control symptoms. Patients who are armed with knowledge can better understand their pain and incorporate lifestyle changes that help manage the condition.

After other related conditions are ruled out, the health care team can focus on managing the symptoms of this debilitating disorder. The health care team often utilizes a multidisciplinary approach to find effective treatments for fibromyalgia patients.

The nursing staff should recognize the patient’s symptoms associated with fibromyalgia and know which resources will be the most effective in providing relief to the patient. It is also important to educate the patient and family members about the complementary therapies available, and simple lifestyle changes that can contribute toward a better quality of life for the fibromyalgia patient.

RESOURCES

National Fibromyalgia Association
http://www.fmaware.org

Fibromyalgia Network
http://www.fmnetnews.com

Advocates for Fibromyalgia
http://www.aftter.org

Mayo Clinic
http://www.mayoclinic.com/health/fibromyalgia/DS00079

American College of Rheumatology
http://www.rheumatology.com

American College of Sports Medicine
http://www.acsm.org
REFERENCES


1) All of the are symptoms of fibromyalgia except:
   A. Fatigue
   B. Musculoskeletal pain
   C. Decreased urinary output
   D. Difficulty concentrating

2) The National Fibromyalgia Association reported which of the following factors may cause people to be susceptible to fibromyalgia?
   A. Environmental
   B. Genetic
   C. Mental health
   D. Cultural

3) Decreased levels of substance P in the spinal cord are frequently present in fibromyalgia patients.
   A. True
   B. False

4) The American College of Rheumatology established the following criteria to help diagnose fibromyalgia patients:
   A. Pain in all four quadrants in the body for at least three months
   B. Pain in at least two quadrants of the body for three months
   C. Widespread pain in the body for a year
   D. Psychosomatic pain for an extended time

5) A patient suffering from fibromyalgia may have pain in which tender points of the body?
   A. Lower back
   B. Shoulder blades
   C. Hips
   D. All of the above

6) The following condition often has symptoms that are similar to fibromyalgia:
   A. Diabetes
   B. Chronic fatigue syndrome
   C. Polymyalgia rheumatica
   D. Both B and C
7) A multidisciplinary approach is often considered when treating fibromyalgia patients.
   A. True
   B. False

8) Research has shown that which of the following medication has had the greatest impact on managing some of the symptoms associated with fibromyalgia?
   A. Muscle relaxants
   B. Benzodiazepines
   C. Analgesics
   D. Antidepressants

9) Fibromyalgia patients should be instructed to participate in a self-management plan that includes exercise, proper sleeping habits and adjunctive therapies.
   A. True
   B. False

10) When communicating with a fibromyalgia patient about exercise, which of the recommendations should be provided?
    A. Exercise in the early morning
    B. Avoid exercise
    C. Exercise can be beneficial, but seek professional help, and start slow
    D. A cardiovascular routine is the only exercise that has been shown to be helpful
Your opinion is important to us. Please answer the following questions by circling the response that best represents your experience.

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<td>2. The number of credit hours was appropriate for the content.</td>
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<td>9. Overall, I am pleased with this activity and would recommend it to others.</td>
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* If you responded “No” to question 10, please explain why:

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* If you answered “Yes” to question 11, what change do you intend to make?

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What barrier, if any, may prevent you from implementing what you learned?

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Cite one new piece of information you learned from this activity:

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Additional comments/suggestions:

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With my signature I confirm that I am the person who completed this independent educational activity by reading the material and completing this self evaluation.

Signature _________________________________ Date: _________________________
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Have you registered with us before? ____ Yes    _____ No

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