THE FIBROMYALGIA SYNDROME:
HOW FAR HAVE WE COME
IN OUR UNDERSTANDING & MANAGEMENT

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Objectives

• Verbalize what is currently known about the pathophysiology of fibromyalgia.

• Identify patient’s at risk, making the correct diagnosis.

• Recommend evidenced based pharmacological & non-pharmacological options for management.

“Follow every word of advice, from every medical expert, from TV, radio, books, magazines, newspapers, tapes and seminars. That should fix whatever you have.”
Fibromyalgia Syndrome

A prevalent chronic pain syndrome, characterized by widespread pain in all four quadrants of the body and the presence of tenderness @ 11+ of 18 specific muscle-tendon sites.

- chronic fatigue
- IBS, IC, TMJ
- mood disorders (depression/anxiety)
- headaches = 50%
- abnormal/non-restorative sleep
- restless leg syndrome
- cognitive dysfn “fibrofog”

Fibromyalgia

- 2-6% US population (2005 = >5 million adults)
- Average 5 years to receive a diagnosis
- Direct costs = $20 billion annually
- Indirect costs = years of pain & suffering, poor quality of life and possible decrease in life expectancy
- ♀:♂ US 7:1
- 2-4% primary care + 95% referred to specialty care (rheumatology, pain medicine, neurology, psychiatry, orthopedics, gastroenterology, urology)
History

- 1970s fibromyalgia syndrome began to be identified as a distinct clinical syndrome. 1987: AMA acknowledged FM as a true illness.
- 1990: ACR classification criteria used for diagnosis.
- 2006: At the FM & CNS Symposium in Oregon, hypothesized that FM may be more than just a myofascial disease.
- 2010: ACR introduces new diagnostic criteria for FM.

Pathophysiology

- 1976: Fibromyalgia = fibro (fibrous tissue), my (muscles), al (pain), gia (condition of).
- 2000+: Fibromyalgia Syndrome
  - Central Nervous System
    - Biochemical (↓ serotonin, ↑ substance P)
    - Metabolic (↑ oxidative stress, ↑ cytokines)
    - Immuno-regulatory (dysfn HPA, ↓ GH, hypothyroidism)
  - Central Sensitization (whole body hypersensitivity to pain)

Pathophysiology

- Injury activates peripheral nerves.
- Excitatory signals from PNS to CNS = PAIN
- Inhibitory signals turn off pain response & rest CNS/PNS to baseline.
- Dysregulation of excitatory & inhibitory signals results in the central sensitization seen in FMS.
- FMS treatments ↓ excitatory sigs, ↑ inhibitory sigs

- NMDA – glutamate
- Substance P
- Nitr oxide
- Norepinephrine
- Serotonin
- GABA & Opiates
Diagnostic Guidelines


The American College of Rheumatology 1990 criteria for the classification of FM

Seminal article on classification criteria.
Gold Standard in FM diagnosis
Continues to be used in research on FM/FMS.

WOKE UP STIFF
A mnemonic for the ACR criteria

- Widespread Pain
- Occiput: suboccipital muscle insertion
- Knee: medial fat pad
- Epicondyle: 2cm distal to lateral epicondyles
- Upper outer quadrant of buttocks
- Paraspinal: second costochondral junction
- Supraspinatus muscles: at origins, above scapular spine
- Trapezius muscles: upperborder midpoint
- Interspinae spaces @ C4-C7, anterior aspects
- Femoral greater trochanter: posterior to prominence
- Four kg: approximate force on digital palpation

American College of Rheumatology 1990 Criteria for the Classification Fibromyalgia

1) History of Widespread Pain (3months+)
left & right side of body
above & below waist
axial skeletal pain

2) Pain in 11-18 Tender Points on digital palpation (4kg)
occiuput, low cervical, trapezius, supraspinatus, second rib, lateral epicondyle, gluteal, greater trochanter, knee)

88.4% sensitivity / 81.1% specificity

**Objectives:**

- simple, practical diagnostic criteria
- provide a severity scale FM symptoms
- improve sensitivity/specificity of dx

**American College of Rheumatology 2010 Preliminary Diagnostic Criteria**

1) Widespread Pain Index (WPI) ≥ 7 & Symptom Severity Scale (SS) ≥ 5
2) WPI 3-6 & SS ≥ 9

Correctly classifies 88.1% of FM cases classified by the 1990 ACR classification criteria.

**Widespread Pain Index**

Total (0-19) # of areas that the patient has had pain in the last week.

**Symptom Severity Scale**

Sum (0-12) of the severity of 3 symptoms (fatigue, waking un-refreshed, cognitive symptoms) & the level of somatic symptoms over the last week.
Patients at Risk

- **Gender** Fibromyalgia is diagnosed more often in women than in men.
- **Family history** You may be more likely to develop fibromyalgia if a relative also has the condition.
- **Rheumatic disease** If you have a rheumatic disease, such as rheumatoid arthritis or lupus, you may be more likely to develop fibromyalgia.
- **Psychological Trauma** Higher incidence in individuals with co-morbid hx depression, anxiety, PTSD.
- **R/O other possible causes of symptoms**: primary anemia, hypothyroidism, viral or bacterial dz, vitamin/nutrient deficiencies, primary muscle disorders.

Paradigm of Management

- **Behavioral**
  - Psychotherapy, CBT, sleep hygiene, biofeedback, relaxation techniques.
- **Physical**
  - Paced/graduated exercise, individualized PT, warm pool.
- **Pharmaceutical**
  - SNRI (cymbalta, savella), TCA, Tramadol, Lyrica
- **Nutritional**
  - Antioxidants, low fat, low glycemic index
The European Union League Against Rheumatism evidenced-based recommendations for the management of FMS.

A multidisciplinary task force of 19 experts in FMS representing 11 European countries.

Multimodal treatment
- CBT
- Tailored exercise program
- Guided relaxation, biofeedback, heated pool

Practical Applications

- Realistic Goals
- Financial Considerations
- Personalize Activities
- Consider PT for education.
- Reinforce positive behaviors/pacing.

Example: "I decided to take an aerobics class. I bent, twisted, twisted and jumped up and down for an hour. But, by the time I got my lardod on, the class was over."

Financial Considerations
- Personalize Therapy
- Reinforce positive behaviors/compliance

Example: "My therapy is quite simple: I wag my tail and lick your face until you feel good about yourself again."
Pharmaceutical

Antidepressants

Cymbalta/duloxetine
- SNRI
- FDA approval 2008
- FM indication 60mg qd

Savella/milnacipran
- SNRI
- FDA approval 2009
- FM indication 50mg bid (max 200mg qd)

Other:
- TCA (desipramine, amitriptyline, nortriptyline)

Anticonvulsants

Lyrica/pregabalin
- FDA approval 2007
- FM indication 150-225mg bid

Neurontin/gabapentin
- NOT FDA approved for FM, but does have a clinical indication for neuropathic pain and PHN.
- 1200mg tid

Other

Mirapex
- Antiparkinsonian (dopamine agonist)
- NOT FDA approved for FMS
- For FMS 4.5mg qhs (Holman & Myers, 2005)

Naltrexone
- Opiate antagonist
- NOT FDA approved for FMS
- For FMS 4.5mg qhs (Younger & Mackey, 2009)

Cytomel (T3)
- synthetic thyroid replacement
- currently under investigation
T3 for the Treatment of Fibromyalgia

T3 for the Treatment of Fibromyalgia

DR. IAN CARROLL, MD, MS, AND DR. JARRED YOUNGER, PHD, OF THE
STANFORD SYSTEMS NEUROSCIENCE AND PAIN LAB

ARE CURRENTLY ENROLLING PATIENTS FOR A CLINICAL TRIAL INVESTIGATING T3 FOR
THE TREATMENT OF FIBROMYALGIA.

THE PRIMARY COMPLAINT OF THOSE WITH FIBROMYALGIA IS WIDESPREAD BODY PAIN AND MUSCLE
TENDERNESS. MOST PEOPLE WHO HAVE FIBROMYALGIA ALSO EXPERIENCE FATIGUE AND MAY HAVE
PROBLEMS SLEEPING. THEY MAY ALSO COMPLAIN OF CONCENTRATION OR MEMORY PROBLEMS,
GASTRONTESTINAL ISSUES, HEADACHES, AND MUSCLE WEAKNESS.

Role of T3

WE ARE INVESTIGATING WHETHER THE THYROID HORMONE T3 IS ONE SUCH TREATMENT THAT MAY
ALLEVIATE THE SYMPTOMS OF FIBROMYALGIA. THERE IS SIGNIFICANT OVERLAP BETWEEN THE
SYMPTOMS OF HYPOTHYROIDISM (LOW THYROID HORMONE PRODUCTION), DEPRESSION, CHRONIC
FATIGUE, AND FIBROMYALGIA. PATIENTS WITH LOW THYROID HORMONE PRODUCTION WHO HAVE
BEEN TREATED WITH T3 FOR DEPRESSION HAVE HAD SOME IMPROVEMENT IN SYMPTOMS.

THIS IS THE FIRST STUDY TO EXAMINE WHETHER T3 MAY HELP WITH THE SYMPTOMS OF
FIBROMYALGIA. PROCEED WITH THIS STEP AS A NECESSARY STEP DURING AN INVESTIGATIONAL
STAGE FOR AN EFFECTIVE TREATMENT. YOUR PARTICIPATION IS A VITAL PART OF THE SEARCH
FOR AN EFFECTIVE FIBROMYALGIA TREATMENT.

Pharmaceutical

Muscle Relaxants
zanaflex
flexeril
baclofen

Non-narcotic analgesics
NSAIDS
Tylenol
Ultram/Tramadol

Sleep Aids
trazodone
elavil
ambien
lunesta


Aim was to discover what was known from the scientific literature regarding FM and nutritional
status.

Medline 1998-2008 (174 articles)

- Vegetarian/Vegan diets
- Weight control
- Increased antioxidant intake
- Low glycemic index (anti-inflammatory)
- Correct nutritional deficiencies (trace elements, Vit D)
- Tryptophan (AA), melatonin, Vit C
Nutrition of Healing

- B Vitamins B3, B6, B12
- Calcium, Iron, Potassium
- Magnesium and Multiple B's
- Eliminate sugar, caffeine, all artificial sweeteners, dairy products
- Increase fruits and vegetables to AT LEAST 5 servings per day

http://www.youtube.com/watch?v=7F61vIMDG7s
ALGORITHM FOR TX OF FM SYNDROME:

Confirm dx, educate about stress reduction/exercise/sleep hygiene; offer TCA for sleep

↓

Symptoms persist/worsen (no) → [Monitor ☺]

(yes) →

Refer to PT for paced exercise program & mental health for CBT

Symptoms persist/worsen (no) → [Monitor ☺]

(yes) →

Reevaluate/Most persistent symptoms?

(TCA injections, manual tx, acupuncture) FOCAL = PAIN → Generalized (tramadol, TCA, SNRI, antiinflammatories)

FATIGUE/ALTERED SLEEP?

Review pacing activities, sleep hygiene. Refer for formal sleep evaluation

Treat like any primary sleep disturbance

MOOD DISTURBANCE?

Ψ Evaluation

Treat like any major mood disorder

Symptoms Persist → (no) [Monitor ☺]

(yes) →

Multidisciplinary Pain Management

Other Specialty Care

Where Is The Research Going?

Familial/Genetic Predisposition

Alteration in the Central Nervous System

IMRI

Substance P

"Wind-up Phenomenon" = Hypergesia

Manipulation of Biochemistry

Pharmacological Research

CLINICAL SYMPTOMS

Triggering Events

NEUROTRANSMITTER DYSFUNCTION

NEUROENDOCRINE DYSFUNCTION

NEUROSENSORY DYSFUNCTION

CLINICAL SYMPTOMS
Laughter is the Best Medicine!

Internet Resources
- Fibromyalgia Information: [http://fibromyalgia.ncf.ca/](http://fibromyalgia.ncf.ca/)

References
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