Overview of Fibromyalgia: Clinical Features and Treatment Approaches

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Presentation Outline

- Nature of Fibromyalgia
  - Clinical features
  - Diagnosis
  - Co-occurring conditions

- Management of Fibromyalgia
  - Complexities of care
  - Behavioral strategies
  - Pharmacological agents
Nature of Fibromyalgia

What’s in a Name?

- Documented reports of diffuse pain conditions with associated lethargy in England and France in the 19th century
- Originally termed “fibrositis”
  - “fibr-” = fibers
  - “-itis” = inflammation
- Changed to Fibromyalgia
  - “-algia” = pain
Fibromyalgia and Chronic Widespread Pain

- **Prevalence**
  - 2-11% lifetime prevalence in the U.S. and U.K.
  - American College of Rheumatology Criteria = 0.5 – 4%

- **Demographics**
  - 80% women, 20 – 50 years of age

- **Co-occurring Symptoms**
  - Morning stiffness
  - Fatigue, sleep disturbance
  - Cognitive/information processing disruption
  - Mood disturbance

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American College of Rheumatology Definition

- History of chronic widespread pain
  - Pain in 4 quadrants of the body
  - Females 1.5 times more likely to report history of chronic widespread pain

- 11 of 18 possible tender points on examination
  - Females 11 times more likely to meet tender point criteria than men

- Tender point endorsement highly associated with levels of distress
Tender Point Examination

- 9 paired regions on the body
- Positive point = reported pain when region palpated with 4 kg of pressure
- American College Rheumatology criteria = 11/18 positive tender points

Other Diagnostic Considerations

- Medical rule-out process
  - Thorough medical history
  - Physical examination
- Recent laboratory studies
- Psychiatric evaluation
  - Identify co-occurring, treatable conditions
Physical Examination

- Besides tenderness, musculoskeletal examination is unremarkable
- Typically no inflammation, connective tissue or neurological abnormalities
- Conduct routine musculoskeletal and neurologic examinations to exclude the presence of co-occurring conditions

Laboratory Testing

- Laboratory testing is usually unremarkable; extensive testing unnecessary and may complicate the situation
- Initial testing
  - Complete blood count
  - Thyroid stimulating hormone
  - Erythrocyte sedimentation rate
  - Muscle enzymes
  - ANA
- Be wary of false positives!
Overlap of Fibromyalgia with Other Disorders

Conceptual Framework of Pain and Fatigue

The General Population
- Population affected by prolonged fatigue or pain
- Overlapping disorder(s)
- FM/CFS
Complexity of Fibromyalgia: Overlapping Syndromes

- Co-occurrence of unexplained syndromes is common
  - Chronic fatigue syndrome
  - Irritable bowel syndrome
  - Temporomandibular disorder
  - Interstitial cystitis/painful bladder syndrome
  - Migraine headache/tension headache

Overlapping Clinical Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Specialty</th>
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<tbody>
<tr>
<td>Fibromyalgia</td>
<td>Rheumatology</td>
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<tr>
<td>Chronic fatigue syndrome</td>
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<td>Irritable bowel syndrome</td>
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<td>Chronic pelvic pain</td>
<td>Gynecology</td>
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<td>Post concussion syndrome</td>
<td>Rehabilitation Medicine</td>
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<tr>
<td>Chronic Lyme disease</td>
<td>Infectious Disease</td>
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</table>
Overlap Between Chronic Fatigue Syndrome and Fibromyalgia

- 21 – 42% of fibromyalgia patients meet Centers for Disease Control and Prevention criteria for chronic fatigue syndrome
- 25 – 75% of chronic fatigue syndrome patients meet American College of Rheumatology criteria for fibromyalgia

Clinical Importance of Overlapping Syndromes

- Treatment is more difficult and complicated with worse outcomes
- Health care use and costs are higher
- Unemployment and functional impairments are excessive
- Greater risk for psychiatric comorbidity
- Impact on treatment planning (e.g., stepped care)
Psychiatric Comorbidity

- Comorbid psychiatric conditions are common
  - Major depressive disorder
  - Generalized anxiety disorder
  - Posttraumatic stress disorder
- Rates of current conditions range from 30 – 60% among tertiary care patients; lifetime rates as high as 85%
- Community studies of fibromyalgia report much lower rates of psychiatric distress
Vulnerability Models

- Biological
  - Genetic (familial transmission)
  - Neurobiological (pain processing)
  - Biochemical (norepinephrine, serotonin)

- Precipitating Events
  - Acute physical traumas
  - Infectious diseases (Hepatitis C, Lyme)
  - Emotional stress/victimization

fMRI – Equal Stimulus Intensity

The Bottom Line…

- No controlled studies have identified a clinically useful biological marker
- Abnormalities in pain perception – central sensitization – are likely mechanism

We also know…

- Certain patient behaviors and systems factors maintain and exacerbate fibromyalgia and functional impairment
Maintaining Factors

- Individual-level
  - Beliefs/attitudes; low confidence
  - Over-exertion cycle
  - Coping strategies
  - Physical de-conditioning
  - Treatment adherence
- Systems-level
  - Changes to support system
  - Disability and compensation; wellness punished?
  - Over-medicalization

Management of Fibromyalgia
Real-life Complexities of Care

- “Diagnosis-cure” approach
  - Set realistic limits on extent of diagnostic testing
  - Encourage “rehabilitation-coping” model of care
- Limited time to deal with multiple problems
  - Stepwise approach to problems; allow patient choice in prioritizing care of medical issues
- Symptoms, circumstances, and motivation can interfere with the “fair trial”
  - Anticipate difficulties and engage in proactive problem solving

Real-life Complexities of Care

- Numerous medications and providers
  - Consider simplification strategies
  - Open communication with providers; be conservative with referrals
- Competing interventions and non-evidence based treatments
- Illness happens in a system
  - Assess levels of support; enlist family members and friends as coaches
  - Identify resources and barriers to care
Treatment Approach

Managing Symptoms

Improving Function

Treatment Approaches

- Behavioral Strategies
- Pharmacological Interventions
- Augmented Care
  - Complimentary and alternative medicine

*Treatment typically involves intervention combinations but MUST involve disciplined physical reconditioning*
Behavioral Strategies

- Promote an internal locus of control by modifying maintaining factors at individual and system levels
- Time-limited, skill-based strategies to improve control over the “volume control” of pain
- Emphasis on proactive, not reactive coping
- Interventions
  - Education
  - Exercise and physical therapy
  - Cognitive behavioral therapy

Cognitive Behavioral Therapy

- Education and self-monitoring
  - Identify triggers and maintenance factors
- Behavioral relaxation strategies
  - Diaphragmatic breathing
  - Progressive muscle relaxation
- Challenging negative beliefs
  - Catastrophic beliefs and expectancies for pain
- Graduated exposure
Targets to Self-Monitor

- Situational cues/triggers
- Associations between pain, mood, and behavior

Take Home Messages

- Cause of fibromyalgia is unknown; symptoms are real and can be managed
- Fibromyalgia is chronic, non-life threatening
- Treatment is available, but it will require work; there are no quick cures
- Focus on managing/changing maintaining factors
Activity: Graduated Exposure

- Guarding and resting in response to pain leads to physical de-conditioning
- Over-exertion experiences with physical activity may lead to conditioned fear of pain and anxiety
- Promote gradual re-engagement in physical activity without worsening symptoms and feared consequences

Graduated Physical Activity

- Select low-impact physical activities
  - Walking
  - Stationary biking
  - Yoga, stretching
  - Swimming, water aerobics
- Develop consistency first, then work on duration and intensity
Getting Started

- Select physical activity with patient
- Determine how much they can do without over-exertion and consequences
- Start 10 – 20% BELOW this level and do activity everyday regardless of how they feel
- Write out clear plan for small increase in time/intensity of activity every 1 – 2 weeks
- Use pedometers
- Diversify activities over time

Predictors of Outcome

- Increased sense of control over pain
- Belief that one is not disabled
- Pain is not a sign of damage
- Active problem solving orientation
- Less guarding/resting in response to pain
- Established physical exercise routine
- Pacing activities
Pharmacological Treatment

- Recent area of great interest to pharmaceutical companies
- Anti-inflammatory medications not effective
- Common agents
  - Antidepressants
  - Antiepileptics
  - Analgesics

Antidepressants

- Antidepressants increase concentrations of serotonin, norepinephrine, or both by serving as reuptake inhibitors
  - Act on descending pain inhibitory pathways
  - Can affect other symptoms (e.g., sleep, energy, mood)
- Good support for pregabalin
- Low dose tricyclics have some empirical support
- Novel antidepressants (duloxetine) are generating encouraging results
- Mixed findings regarding predominantly serotonergic agents (fluoxetine)
Antiepileptics

- Pregabalin, gabapentin, tegretol
- Bind to subunit of voltage-gated calcium channels of neurons
- Inhibits release of neurotransmitters (e.g., noradrenaline, substance P)
- Called “anticonvulsants” but effective for neuropathic pain and anxiety

Pregabalin Study

- Randomized, controlled, double blinded trial
- N = 530 fibromalgia patients
- Primary goal: assess efficacy of 3 doses of pregabalin vs. placebo to relieve pain
- Primary outcome: pain rated in a daily diary on a scale of 0 (no pain) to 10 (worst possible pain).
- Secondary outcomes: fatigue, sleep, and global functioning

Crofford L. ACR Meeting; 2002; New Orleans, LA.
• A significantly larger proportion of patients receiving pregabalin 450 mg/day experienced a ≥ 50% reduction in pain from baseline to endpoint.

*P = .003 vs placebo.

Summary of Pregabalin Results

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<td>Sleep diary</td>
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<td>Short Form-36 General Health Survey</td>
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Newer Agents: Milnacipran

- Milnacipran
  - Balanced reuptake inhibitor of norepinephrine and serotonin
  - Approved in Europe and Japan as an antidepressant
  - Double blind, placebo controlled, multi-site study showing dose-dependent efficacy

Newer Agents: Duloxetine

- Duloxetine
  - Balanced and potent serotonin and norepinephrine reuptake inhibitor
  - Antidepressant but also reduces painful physical symptoms associated with depression
  - Examined for treating other chronic pain disorders, e.g., diabetic neuropathy
Opioid Receptor Ligands: Tramadol

- Opioids prescribed to ≈ 15% of fibromyalgia patients
- Variable patient acceptance and physician reluctance
- No good studies of opioids in fibromyalgia
- Tramadol ± acetaminophen show possible efficacy
  - Tramadol functions as $\mu$-opioid receptor ligand and norepinephrine reuptake inhibitor

Adjunctive Treatments

- Complimentary and alternative medicine
  - Acupuncture
  - Massage therapy
  - Herbal, naturopathic interventions
- Consider personal and cultural views of illness, health, and wellness
Acupuncture Studies: Summary

- Few randomized, controlled, single blind trials
- Tested directed acupuncture vs. various forms of sham acupuncture, control conditions that varied in needle insertion, location, and stimulation
- All forms of acupuncture are equally beneficial in reducing pain of fibromyalgia
- No effect of needle placement or stimulation

Treatment

"There's so little we know."