

FAME 2006 CONFERENCE

Fibromyalgia Awareness Means Everything
Summary of Presentations
Janice Sumpton BScPhm

Historical Landmarks in Understanding FM by Robert Bennett MD

- 1869 – neurasthenia-enfeeblement of the nervous force
- Sir William Osler wrote extensively on neurasthenia and referred to hyperaesthesia and described “weariness on the least exertion, weakness, pain in the back and aching in the legs”
- Sir William Gowers coined the term “fibrositis” in 1904 when describing lumbago
- 1904 – Ralph Sockman did a biopsy-inflammation of the muscles
- 1990 Diagnostic Criteria for Fibromyalgia established by the American Society of Rheumatologists

Did you know?

- biblical references to fibro symptoms
- Shakespeare plays describe fibro symptoms
- felt that Florence Nightingale RN and Alfred Nobel probably had fibro

The Patient's Role in the Treatment of FM

by Lynne Matallana, NFA President

- Feed your soul, do things that make you happy!
- Live your life forward!
- Change your perspective on life-used to snow ski in the past, now I walk the dog and experience nature
- You are only a “patient” when you are seen by a health-care provider. You are a person!

Challenges of Treating Pain by Robert Bennett MD

- Aim: to decrease central sensitization
- Need to achieve a calm nervous system
- Need to change the activity of neuromodulators and neurotransmitters at the synapse
- Output from the neurons needs descending inhibition

Challenges of Treating Pain cont'd

- Duloxetine- SNRI, balanced reuptake inhibition, serotonin and NE key in descending pain pathways
- Milnacipran- SNRI, preference to NE reuptake inhibition and binds to NMDA receptors
- Both drugs in research studies have shown positive outcomes in fibro

Challenges of treating pain cont'd

- Selegiline patch, FDA released in Feb 2006 for “atypical depression”- the increased fatigue type
- Dose is 6mg patch applied once daily
- DM = dextromethorphan is a NMDA antagonist
- Alpha-2 adrenergic agonists – tizanidine
- Dopamine agonists – pramipexole, ropinirole

Challenges of treating pain cont'd

- Drugs that increase serotonin – TCAs, SSRIs, tramadol (Tramacet)
- Ziconotide (Prialt) extracted from the cone snail which has high conc. of many pharmacological chemicals
- Given intrathecally to treat refractory pain in cancer/AIDS patients
- Antagonist by binding to N-type Ca channels

Challenges of treating pain cont'd

- Dr. Bennett's study, 15mg prednisone vs. placebo cross-over found no difference in results
- Steroids do not help fibro, not an inflammatory process
- Prolotherapy = hypotonic sugar inj into ligaments, no controlled studies
- Glutamate-neurotransmitter that aggravates fibro

Cognitive Function and FM

by Jennifer Glass PhD

- Yes, we can measure cognitive function
- FM pts often describe decreased cognitive function, affectionately referred to as “fibro fog”
- “multiple processing” or competing focus on more than one function at a time is a significant problem in FM
- Growing evidence that FM pts perform more poorly on a range of cognitive tasks than age-matched controls
- To understand the decreases in cognition a few definitions require review

Cognitive function in FM cont'd

- **WORKING MEMORY** is the amt of mental power or online cognitive resource a person has available in any given situation, critical for accurate performance in demanding cognitive situations
- **EPISODIC MEMORY** is the ability to remember specific events or episodes, disruption of this type of memory could seriously impact one's ability to perform in the workplace
- **VERBAL FLUENCY** is how quickly + efficiently a person can access stored knowledge about words, a deficit can make it difficult to come up with the right word for a given situation

Cognitive function in FM cont'd

- Deficits in working memory, episodic memory and verbal fluency can be problematic especially in jobs that require “thinking on your feet”
- INFORMATION PROCESSING SPEED measures perceptual comparisons which is hypothesized to be an indicator of neurobiologic health
 - Glass J et al. Current Rheumatology Reports 2001,3:123-127

Cognitive Function in FM cont'd

- Study to evaluate FM pts for presence of cognitive deficits, testing at 1pm (pt felt their “best time”)
- 3 groups compared; 23 pt non-depressed FM pt not taking meds known to affect cognition, 23 age and education matched control pts, 22 education matched to be 20yr older (+/- 3yr) than FM pts
- RESULTS: significant differences found, FM pts performing more poorly than age-matched pts on working memory ($p=0.042$), episodic memory (free recall= $p=0.005$, recognition memory= $p=0.035$), and verbal knowledge (assess verbal knowledge but does not require active retrieval)(p=0.055))

Cognitive function in FM cont'd

- No difference found in information-processing speed ($p=0.975$)
- FM pt compared to 20yr older group showed similar performance – working memory ($p=0.909$), free recall ($p=0.588$), recognition memory ($p=0.177$), verbal fluency ($p=0.89$)
- FM pt compared to 20yr older group were significantly faster on information-processing speed ($p=0.013$)
- In contrast FM pts performed more poorly than older controls on verbal knowledge ($p=0.009$)

Cognitive function in FM cont'd

- SUMMARY OF STUDY
- FM pts function similar to controls 20yr older, in working memory, episodic memory, verbal fluency, (worse on verbal knowledge)
- Speed of processing info FM pts = same-age controls
- FM pts are better at using memory aids-appts written on calendar, notes/lists to remember
- Cognitive dysfunction in FM is legitimate, and it's cause differs from older pts since FM speed of processing is superior = hopeful can be remedied
- Park D. et al. Arthritis and Rheumatism 2001.44(9):21225-2133

Cognition in FM cont'd- why CD in FM?

- Depression and anxiety do NOT correlate with Cognitive Dysfunction scores
- Sleep deprivation especially affects working memory
- HPA (hypothalamus-pituitary-adrenal) dysfunction in FM – a relationship to CD is controversial since can have high or low cortisol levels
- Pain-is a factor in FM pts affecting cognitive function
- KEY in FM pts is the negative effects that divided attention has on memory performance

Cognitive function in FM cont'd

- HEALTHY INDIVIDUALS effect of increasing number of distractions
- The person's learning and recall functions remain the same no matter how many distractions are present, so after a while the increasing number of distractions don't make any difference
- FIBROMYALGIA PTS effect of increasing number of distractions
- The person's learning and recall functions decrease significantly as the number of distractions increase

FM Show Me Where It Hurts a video showing dopamine's role by S. Wood

- The hippocampus is NB in FM
- Dopamine, a neurotransmitter is key (esp D3)
- Many FM pts also have restless legs syndrome (RLS) and dopamine agonists now first line tx for RLS, including pramipexole and ropinirole

- Pramipexole in FM, a randomized, dbl-blind, placebo-controlled trial
- 60pt, 2:1 (pram to placebo) 4.5mg or placebo at bedtime
- Stable doses of concomitant meds incl analgesics ok

FM show me where it hurts cont'd

- Prami pts experienced gradual and more significant improvement in measures of pain, fatigue, function, and global status at 14 weeks
- Most common side effects of prami were transient anxiety and weight loss
- No pts withdrew because of inefficacy or adverse effects
- Dopamine and the hippocampus which mitigates memory, learning, stress modulation, and nociception, and inhibits adrenergic arousal from the locus ceruleus
- Chronic pain states alter the HPA axis which leads to hippocampal atrophy, hence impairment of modulation of adrenergic arousal
 - Holman A. Arthritis and rheumatism.2005;52(8);2495-2505

Show me where it hurts cont'd

- Sleep apnea may occur in people that don't have the standard risk factors, may require testing to assess
- OTC to help make dopamine is d-l phenylalanine
- ?cervical FM requires flexion-extension MRI to diagnose, clonidine works well to treat it

- Virtual clinic expected up and running AUG 2006, able to input your own pt data
 - <http://www.lifebeyondpain.com>

One Disease or Many? FM and Related Syndromes – panel of speakers

- Panel = D Clauw MD, D Williams MD, D Buchwald MD, B Naliboff MD
- **IBS= Irritable Bowel Syndrome**
- Primarily constipation alternating with diarrhea or equal mix
- Affects 10-20% USA pop'n, 70% are females
- 65% of IBS pts have FM
- 70% of FM pts have IBS symptoms of which 20-50% met IBS diagnostic criteria

One disease or many? Cont'd

- Stress exacerbates symptoms of IBS and FM
- Disturbed sleep and fatigue seen in both
- Hyperalgesia seen in FM and IBS
- Theories on mechanisms of IBS
 - Not related to motility
 - Centrally mediated = centrally influenced motility and immune changes + central modulation of perception of visceral events
 - Peripherally mediated = post infectious, motility, bacterial overgrowth

One disease or many? Cont'd

- Dorsal pons involved in augmentation of pain with distended bowels suggests a common mechanism to IBS and FM
- Involves stress-related central dysregulation
 - <http://www.uclaCNS.org>

One disease or many? Cont'd

- **Chronic Fatigue Syndrome (CFS)**
- 1994 CDC Diagnostic criteria for CFS established, require 4/8
- 60-70% are females, 20-50 yrs old
- Objective findings known:
 - Higher Ab titres (meaning unclear)
 - White blood cell dysfunction
 - Autonomic hyperactivity-tilt table test abnormalities
 - HPA axis abnormalities
 - Low pain threshold and tolerance
 - Disrupted sleep architecture

One disease or many? Cont'd

- Pathophysiology of CFS is not well understood
- Treatment modalities for FM and CFS
 - Pregabalin (Lyrica) same effects in both
 - Duloxetine (Cymbalta-US) helpful in FM
- Research show environment and genetics involved, a twin-pairs study showed it is different from depression
- PET scans of the brain show CFS pts with a decrease # of serotonin receptors and decrease in serotonin receptor binding

One disease or many? Cont'd

- CFS pts used larger areas of the brain to accomplish tasks compared to healthy people
- There is something in the brain of CFS pts so not able to process external stimuli
- Study using methylphenidate (Ritalin), dbl blind, placebo controlled—found improvement in CFS pts

One disease or many? Cont'd

- **Drug Treatment**
- There is a problem with volume control in pts with IBS, CFS, FM.....low pain threshold
- From D Goldengerg et al. JAMA 2004:292;2388-2395
 - Up-to-date evidence-based guidelines for optimal tx of FM
 - Strong evidence for efficacy=amitriptyline,cyclobenzaprine
 - Modest evidence for efficacy=tramadol, fluoxetine, venlafaxine, milnacipran, duloxetine, pregabalin

One disease or many? Cont'd

- Weak evidence for efficacy = growth hormone, serotonin, tropisetron, s-adenyosyl-methionine
- No evidence for efficacy = opioids, corticosteroids, NSAIDs, hypnotics (benzo and non-benzo), melatonin, calcitonin, thyroid hormone, guaifenesin, dehydroepiandrosterone, magnesium

One disease or many? Cont'd

- NON-MEDICINALS
- Strong evidence for efficacy = cardio exercise, CBT, pt education, combos of above
- Moderate evidence for efficacy = strength training, acupuncture, hypnotherapy, biofeedback, balneotherapy
- Weak evidence for efficacy = chiropractic, manual, and massage therapy, electrotherapy, ultrasound
- No evidence for efficacy = trigger point injections, flexibility exercise

One disease or many? Cont'd

- **CHEMICALS THAT FACILITATE PAIN**
- CCK (cholecystokinin)
- Nerve growth factor
- Neurotensin
- Serotonin
- Excitatory amino acids (aspartate and glutamate)
- Substance P

One disease or many? Cont'd

- **CHEMICALS THAT INHIBIT PAIN**
- Descending anti-nociceptive paths
- Norepinephrine, serotonin
- Opioids
- GABA (gamma amino-butyrac acid)
- Adenosine
- cannabinoids

One disease or many? Cont'd

- Theory on why opioids often do not help FM pts... because FM pt already have increased endorphins so opioids don't work since the receptors are already full
- Research thus far in FM, CFS, IBS is the tip of the iceberg
- There are many similarities in their proposed mechanisms
- Likely a dually focused model affected by genetics, stress and the environment

Central Sensitivity Syndromes

by M. Yunus MD

- **Central Sensitization**
- Is an exaggerated response of the CNS to both a noxious and non-noxious stimulus, mostly at the periphery (the extremity or the trunk)
- After a stimulus a few things occur:
 - A normally painful stimulus becomes much more painful than expected (hyperalgesia)
 - A normally non-painful stimulus such as touch, gentle pressure or massage now becomes painful (allodynia)

Central sensitivity cont'd

- The pain spreads beyond the expected area of stimulation
- The pain becomes more sustained and lasts longer
- Activation of post-synaptic NMDA receptors
- Enhanced chemical and molecular changes in post-synaptic cells leads to highly sensitive responses to stimuli
- Dorsal horn sensitization output>>>>>input
- Environmental overstimulation-noise, light, smell, temp

Central sensitization cont'd

- **MEMBERS OF THE CSS FAMILY**
- FM, CFS, IBS
- Tension-type headache, migraine
- Multiple chemical sensitivity
- Primary dysmenorrhea
- Periodic limb movement disorder, restless legs syndrome
- Temporomandibular pain and dysfunction syndrome
- Regional fibromyalgia/myofascial pain syndrome

Central sensitization cont'd

- **EVIDENCE OF CSS**
- Widespread pain indicates it must be central
- Persistence and spread of dysesthesia following noxious stimuli
- Increased nociceptive spinal reflex - a completely objective test
- SPECT brain scans show decrease in cerebral blood flow in the caudate nucleus and the thalamus (both which modulate pain perception)
- Pain perception is influenced by the sympathetic system and the HPA axis

Contribution of Sleep Disorder to Pain + Fatigue by H Moldofsky MD

- FM pts have repetitive disruption of stage 4 sleep (restorative, deep sleep)
- Unrefreshing sleep very positively co-relates to increased pain
- Unrefreshing sleep positively relates to hypersensitivity to light, smell, noise
- FM pts tested by EEG while they sleep show alpha waves continuously appearing during stage 4 sleep so pt doesn't experience "true" deep sleep
- Sleep disturbance causes increased pain and increased pain causes sleep disturbance

Reduced Sleep Spindles in FM

by C Landis MD

- A spindle is a type of brain wave activity seen on EEG
- Poor sleep at night often leads to increased pain the next day
- Polysomnography in FM pts shows:
 - Increased wakefulness after sleep onset
 - Increase in REM stg 1, decrease in sleep efficiency
 - Increased fragmentation, increase frequent micro arousals, CAP (cyclic alternating pattern) = non-restorative sleep
 - Alpha activity in NREM = non-restorative sleep pattern

Reduced Sleep Spindles cont'd

- Alpha waves are continuous through stg 3 and 4 sleep in FM pts and the alpha waves should be absent in this stage of sleep
- Look for another EEG marker for non-restorative sleep leads to sleep spindles
- Sleep quality = sleep spindles
- Sleep spindles come from the thalamus located in the mid-brain
- Study of 30 med-free FM pt vs. 30 sedentary no-pain women
 - Statistically significant decrease in # of sleep spindles and significant decrease in activity of the spindles present on EEG in the FM group
 - Landis C. Sleep 2004:27(4);741-50

Reduced Sleep Spindles cont'd

- Thalamic Gating allows the brain to block input into the cortex which helps one to fall asleep when the gate is closed
- Inability to keep the “sensory gate” closed during sleep compromises sleep efficacy
- Benzodiazepines (Valium), increase the number of sleep spindles, not sure if non-benzo hypnotics affect sleep spindles
- Current research being done on memory and sleep spindles.... Is there a relationship between the two?

fMRI and Understanding FM

by R. Gracely MD

- Looking at hyperalgesia in FM patients vs controls and what is seen on functional MRI
- fMRI shows very quick changes in the brain
- fMRI shows painful stimulation to pt results in increased regional cerebral blood flow in structures involved in the processing of sensation, movement, cognition and emotion
- From Gracely R. Arthritis & Rheumatism 2002;46(5);1333-1343
 - 16 pts in each group (FM/controls)

fMRI and FM cont'd

- Stimulus was to squeeze the person's thumb at increasing intensity and see if there were changes in the brain on fMRI
- 2 kg pressure to thumb to FM pt felt pain, no pain in controls, fMRI in FM pt showed ++ activity, little activity in controls
- 4.5 kg pressure to thumb was necessary in controls to equal levels of pain in the FM pt at 2 kg
- This objective test (fMRI) supports the hyperalgesia seen in FM pt and supports the verbal reports of FM patients

Is FM a “Limbic Pain Disorder?”

by P. Wood MD

- YES, it is
- NAA (N-acetyl-aspartane) is found in the hippocampus and is important for how you feel
 - FM pts have less NAA in their hippocampus
- FM pts show atrophic changes in their brain (decreased grey matter, changes in the hippocampus, insula, and other areas related to pain processing, anterior cingulate cortex and nucleus accumbens)

Limbic pain disorder? Cont'd

- Mesolimbic dopamine is the principle pain fighter
- Stress decreases dopamine
- With less dopamine the more intense the stimulus will be (or any sensation-noise)
- FM pts have a deficiency of dopamine (neurotransmitter)
- Dopamine is like a brain fertilizer and soother, so when it is removed then get hyperstimulation
- FM = mesolimbic pseudoparkinsonism
- FM = hippocampal metabolite abnormality + cortical and thalamic atrophy + decreased dopamine synthesis

Limbic Disorder? Cont'd

- **NUCLEUS ACCUMBUS**
 - Involved in affect.....depression, anhedonia
 - Nociception.... Hyperalgesia, allodynia
 - Vitality Fatigue
 - Motor control Restless legs syndrome
 - Cognition Inattentive, distractible

Complimentary Approaches to FM Treatment by M. McNett MD

- FM pts may have hidden hypothyroidism
- Std labs for thyroid function (T3,T4,TSH) does not detect it
- Thyroid hormone decreases substance P production and it's receptors, if hormone levels are low then can increase substance P which increases pain perception
- 3 types of thyroid receptors = alpha, beta1, beta2
- Can have normal blood levels the levels of these 3 vary and may even out to normal level in total
- Alpha is on chromosome 17, betas on chromosome 3

Complimentary approaches cont'

- YEAST OVERGROWTH SYNDROME
 - Chemicals from yeast inhibits the alpha thyroid receptor
 - Candida in gut, kill the yeast with nystatin (or fluconazole if resistant) and take lactobacillus to prevent yeast re-growth

Dysautonomia in FM

by S. Silverman MD

- **AUTONOMIC NERVOUS SYSTEM**
- Sympathetic NS = fight and flight
- Parasympathetic NS = rest and digest
- When out of balance in FM pts can see night sweats, changes in heart rate, dizziness, changes in blood pressure
- FM pts have central and peripheral autonomic dysfunction

Dysautonomia cont'd

- 24h EKG monitor (Holter monitor) in 93 FM patients
 - FM pts do not have normal circadian rhythms
 - The parasympathetic NS does not kick in
 - Non-FM pts have a steady parasympathetic response when they sleep
 - FM pts don't have a parasympathetic response so end result is sympathetic overdrive, don't have restorative sleep.....the light switch does not turn off

New Pharmacological Interventions a panel discussion

- L. ARNOLD MD
- Drugs affecting serotonin and norepinephrine are most consistent effects in persistent pain
- Milnacipran and duloxetine show positive results in FM
- Duloxetine study – Arnold L et al. Arthritis & Rheumatism 2004;50(9);2974-2984
- Randomized, dbl-blind, placebo-controlled 12 week trial of 207 pt
- First 2 wk dose titrated from 20mg/day to 60mg twice daily, start at low dose in am decreases nausea + insomnia
- Duloxetine improved FM symptoms and pain severity

New Pharmacologic agents cont'd

- Milnacipran not available on the US or Canadian market currently
- Phase 2 trial – Gendreau R et al. J Rheumatol 2005;32;1975-85
- 125 FM pt, 3 month study, randomized, dbl blind, placebo controlled, 3:3:2 to OD:BID:placebo
- Pts able to escalate dose to 200mg daily
- Primary end pt was reduction in pain
- Twice daily more effective than once daily, less SE
- Significant decrease in pain, fatigue, morning stiffness
- Nausea most common SE

New Pharmacological agents cont'd

- P. Mease MD
- Pregabalin (Lyrica) is effective in neuropathic pain
- Is similar, but unique from gabapentin
- Works by decreasing release of glutamate, noradrenaline and substance P ... especially in situations of previous activation (like in FM)
- Study results from Crofford L. et al. Arthritis & Rheumatism. 2005;52(4);1264-1273
 - Multicentre, dbl-blind, 8-week, randomized placebo controlled vs pregabalin 150mg, 300mg, 450mg/day

New pharmacologic agents cont'd

- Effects on pain, sleep, fatigue, and health-related quality of life
- 450mg/day significantly decreased average severity of pain compared with placebo ($p \leq 0.001$)
- Significantly more in this grp had $\geq 50\%$ improvement in pain than placebo (29% vs 13% , $p=0.003$)
- 300mg and 450mg/day showed significant improvements in sleep quality, fatigue, and global measures of change

New pharmacological agents cont'd

- 450mg/day improved several domains of health-related QOL
- Dizziness and somnolence most frequent SE
- Dizziness goes away with time
- 78% pts entered the open label phase of the trial

New pharmacological agents cont'd

- R. Bennett MD
- Sodium oxybate (Xyrum), sodium-4-hydroxybutyrate, GHB
- Is a precursor to GABA
- Eliminated by Kreb's cycle
- Decreases pain and fatigue
- Study by Bennett (unpublished data) indicates 4.5g is as efficacious as 6g
- Causes sleep very quickly so must take it while lying in bed

New pharmacologic agents cont'd

- A liquid formulation
- Not very practical as second dose of the night 4h after first dose
- Psychoactive, requires ++ control in dispensing due to abuse potential and diversion

Families Coping With Chronic Pain

by B. Jackson PhD

- 90 families studied mainly FM pts (10 were arthritis)
- Coping methods that **help** include:
 - Accepting realities/managing changes = changing chores and responsibilities
 - Having a family focus like eating meals together
 - Keep communication open...talk it out
 - Building relationships
 - Focusing on family health

Families coping with chronic pain cont'd

- Family Coping Methods that have **not helped** :
 - Denying reality and ignoring changes
 - Not building relationships
 - Seeking therapeutic alternatives
 - Exceeding the limits (too much of anything)

Women's Health Issues – Symptoms Overlap with FM by S. Silverman MD

- Chest pains in FM are chest wall muscle spasms
- Osteoarthritis-most common in elderly
- Glucosamine works best on lower extremities than upper
- Can be diagnosed with “thoracic outlet” , which is incorrect and is FM
- Night sweats = dysautonomia seen with FM
- Estrogen – goal is to stabilize
 - Changes in estrogen can exacerbate FM symptoms

Women's health issues cont'd

- Osteoporosis = inactivity and increased bone loss
 - Vitamin D from sun important
 - Get out and be active
- Fractures = red light for potential osteoporosis
- If low bone mass (osteopenia) then more fractures
- Recommend 800-1000 units vitamin D per day
- Recommend elemental calcium 1000-1500mg per day
 - Split up over day since only absorb 500mg at a time
- Teriparatide = new drug that helps rebuild bone

Fibromyalgia and Dopamine

by A. Holman MD

- Increase in sympathetic NS drive = hypermobility
 - Which leads to flat feet, irregular heart rate
- Autonomic dysregulation = vasomotor instability
 - (body temp and sweating affected)
- = GI reflux, IBS
- = unexplained chest pains and palpitations
- = inhibition of stage 4 sleep (restorative sleep)

FM and dopamine cont'd

- Restless Leg Syndrome (RLS) common in FM
- RLS is caused by lack of dopamine (esp. D3)
- Ropinirole (Requip) is a dopamine agonist D3 +++
- Pramipexole (Mirapex) is a dopamine agonist D3 ++++++
- Holman A. J Rheum (letter) 2003:30(12)2733
 - 1.55mg prami at bedtime in FM pts
- Holman A. Pain 2004:12(1);69-74
 - Open label prami 0.25mg increase wkly by 0.25mg to 2mg at bedtime
 - FM pts = increase function, decrease pain, fatigue

FM and dopamine cont'd

- Holman A , unpublished data
 - 60 FM patients, not drug company sponsored
 - Placebo vs. prami at bedtime in doses up to 4.5mg
 - Could stay on regular meds at current doses
 - 4.5mg prami significantly different than placebo
 - Nausea most common SE (take with ranitidine)
 - Weight loss (> 5lb)
- Pts with cervical cord compression need to stabilize the nerves with gabapentin or pregabalin

Empowerment Through Advocacy

by K. McCleary

- What you achieve through advocacy:
 - Accountability
 - Funding
 - Direction of research and education
 - Empowerment

What can we do May 12th each year, endorsed in USA and Canada as National Fibromyalgia Awareness Day

Taking Care of Flare-Ups Before They Take Care of You-by R. Devonshire

- Co-author of book “Taking Charge of Fibromyalgia”
- Social worker and FM patient
- Flare-ups with increased humidity, and with flu + colds
- Identify your stressors
- Perfectionism=drains your energy
 - = cause of flares
 - =need to let go and say “no”
 - It’s ok not to be perfect
 - Practise being “imperfect”
- In a flare decrease exercise by at least 1/2
- Drink ++ water to stay hydrated

IN SUMMARY

- There is lots of hope in the future for FM patients
- Research is leading towards better understanding of the cause of FM which likely is multi-factorial
- Research is identifying diagnostic tests that confirm and legitimize FM symptoms expressed by patients
- With a better understanding of the underlying imbalance in neurotransmitters, central sensitization, dysautonomia, HPA axis it will lead to more specific drugs that can help with symptoms
- There is light at the end of the tunnel !