

CAPTURING THE HEALING SHIFT



USING HRV TO IDENTIFY EFFECTIVE ACUPUNCTURE TREATMENT

*Development of a Heart Rate Variability Protocol for Use in
the Acupuncture Clinic*

HRV MAY HELP TO

- Show that acupuncture can reduce stress over time in addition to clinical symptom improvement
- Identify clinical responders versus clinical non-responders
- Optimize needling and treatment strategies for clinical results

WHY THIS PROJECT? WHY DEVELOP A BIOMARKER?

Better results! Faster, more reproducible

- Good for patients
- Good for business
- Good for credibility of Acupuncture in general
- Good for Acupuncture Research community

WHY THIS PROJECT? WHY DEVELOP A BIOMARKER?

- Vagal Enhancement is big business
- HRV measures vagal activity, what acupuncture related strategies improve vagal activity?

HRV IS A TOOL THAT MEASURES STEADY STATE STRESS AND DYNAMIC STRESS RESPONSE

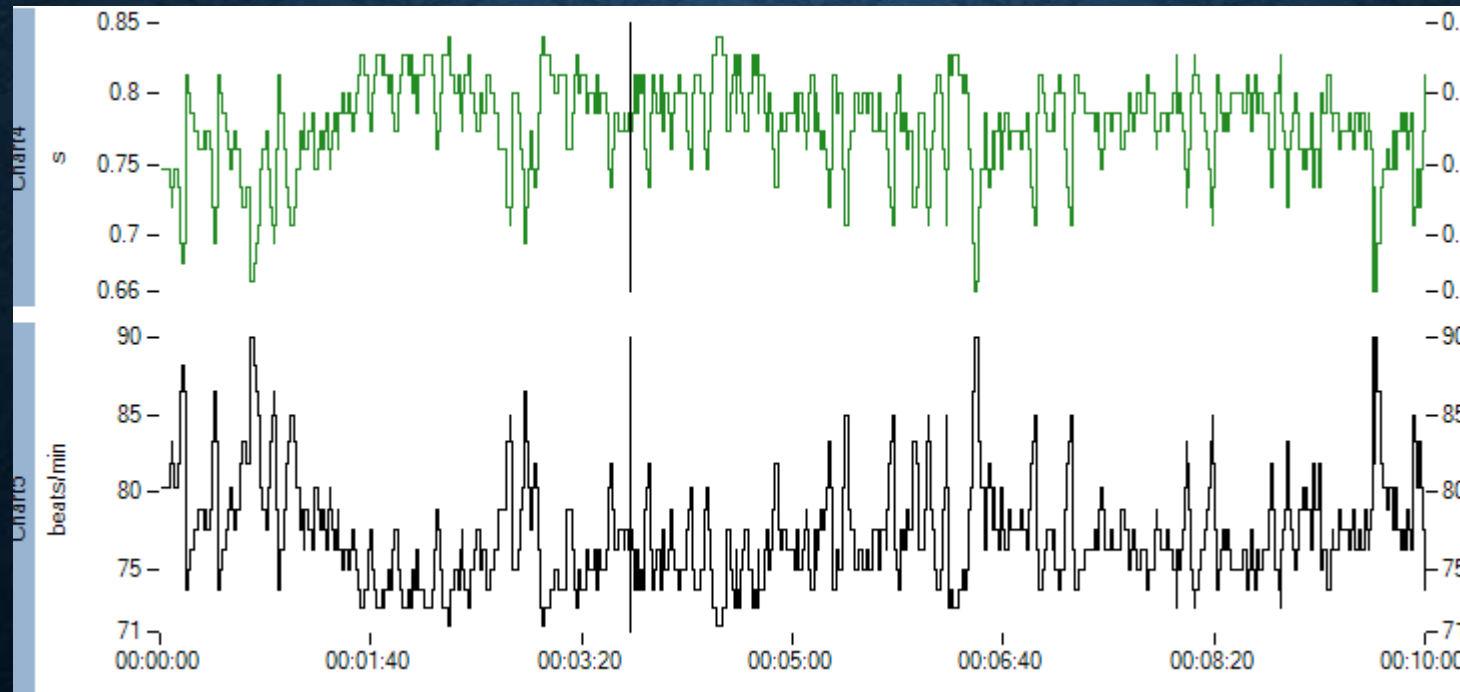
- Snapshot of health or resilience
- Measure of dynamic response to treatment

CAPTURING THE HEALING SHIFT



HEART RATE VARIABILITY MONITORING IS A NONINVASIVE MEASURE OF AUTONOMIC BALANCE (STRESS)

- Noninvasive Method of measuring autonomic balance, or stress levels, using computer analysis of the variability of heart rate with breathing



POOR HRV= POOR HEALTH

HRV decreases with

- Old Age
- Injury
- Illness
- Stress



STRESS: BAD FOR HEALTH, MOOD, LIFE

- Immunology (allergies, autoimmune)
- Mood (Anxiety, depression, panic attacks)
- Pain Thresholds
- Longevity

If we do nothing but decrease stress
(increase parasympathetic activity) we've
done a lot

HRV= SNAPSHOT OF STRESS LEVELS

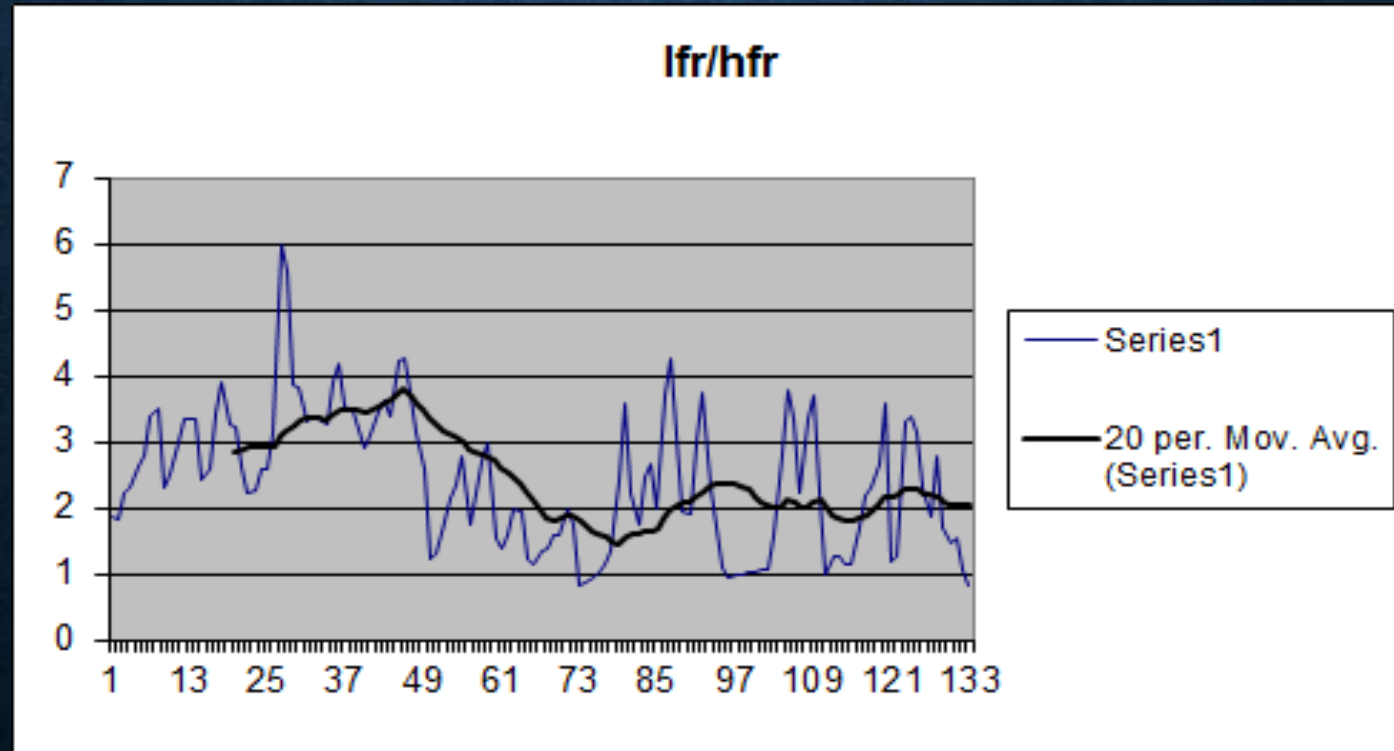
HRV (Stress Levels) and High Blood Pressure

HRV (Stress Levels) and Coronary Disease Measures



HRV PROFILE/STRESS REDUCTION MAY CORRELATE WITH SUCCESSFUL ACUPUNCTURE TREATMENT

Responders show a decrease in their stress response during acupuncture treatment



PATIENTS WHO HAVE CLINICAL IMPROVEMENT WITH ACUPUNCTURE ALSO HAVE IMPROVEMENT IN HRV

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Analysis of Heart Rate Variability in Acupuncture Practice: Can It Improve Outcomes?

Kristen Sparrow, MD

ABSTRACT

Background: Acupuncture may achieve results partially through altering vagal tone. Heart rate variability (HRV) monitoring is a noninvasive method of observing sympathovagal tone.

Objectives: To explore HRV analysis methods applicable to the acupuncture clinic setting, and to compare intratreatment HRV response in patients who have responded to their acupuncture series with patients who did not respond.

Design, Setting, and Patients: Retrospective, uncontrolled observational study of 27 patients presenting to a private acupuncture clinic.

Intervention: All patients received body acupuncture prescribed by the tenets of Traditional Chinese Medicine (TCM), according to their presenting pattern and diagnosis. Data were analyzed after their treatment course was completed.

Main Outcome Measure: Patients' assessment of progress and functionality, as a function of their LFR/HFR (low frequency to high frequency ratio) HRV intratreatment trend.

Results: Patients who responded to their acupuncture series tended to exhibit a decrease in LFR/HFR during the acupuncture treatment. Non-responders tended to show no change or an increase in their LFR/HFR.

Conclusions: In this study, the correlation between vagal enhancement (decrease in LFR/HFR) during acupuncture treatment and positive response to acupuncture was supported.

MIGRAINE PATIENTS WHO IMPROVE WITH ACUPUNCTURE ALSO HAVE IMPROVEMENT OF THEIR HRV DURING TREATMENT

- (Clin J Pain 2008;24:106–115)



ACUPUNCTURE AND HRV HAS BEEN STUDIED AND WE KNOW MORE ABOUT RESPONSE WITH:

- Animals, healthy volunteers, patients with various conditions
- Acupuncture points
- EEG
- FMRI
- Skin resistance
- GI Motility

HRV MONITORING PROTOCOL

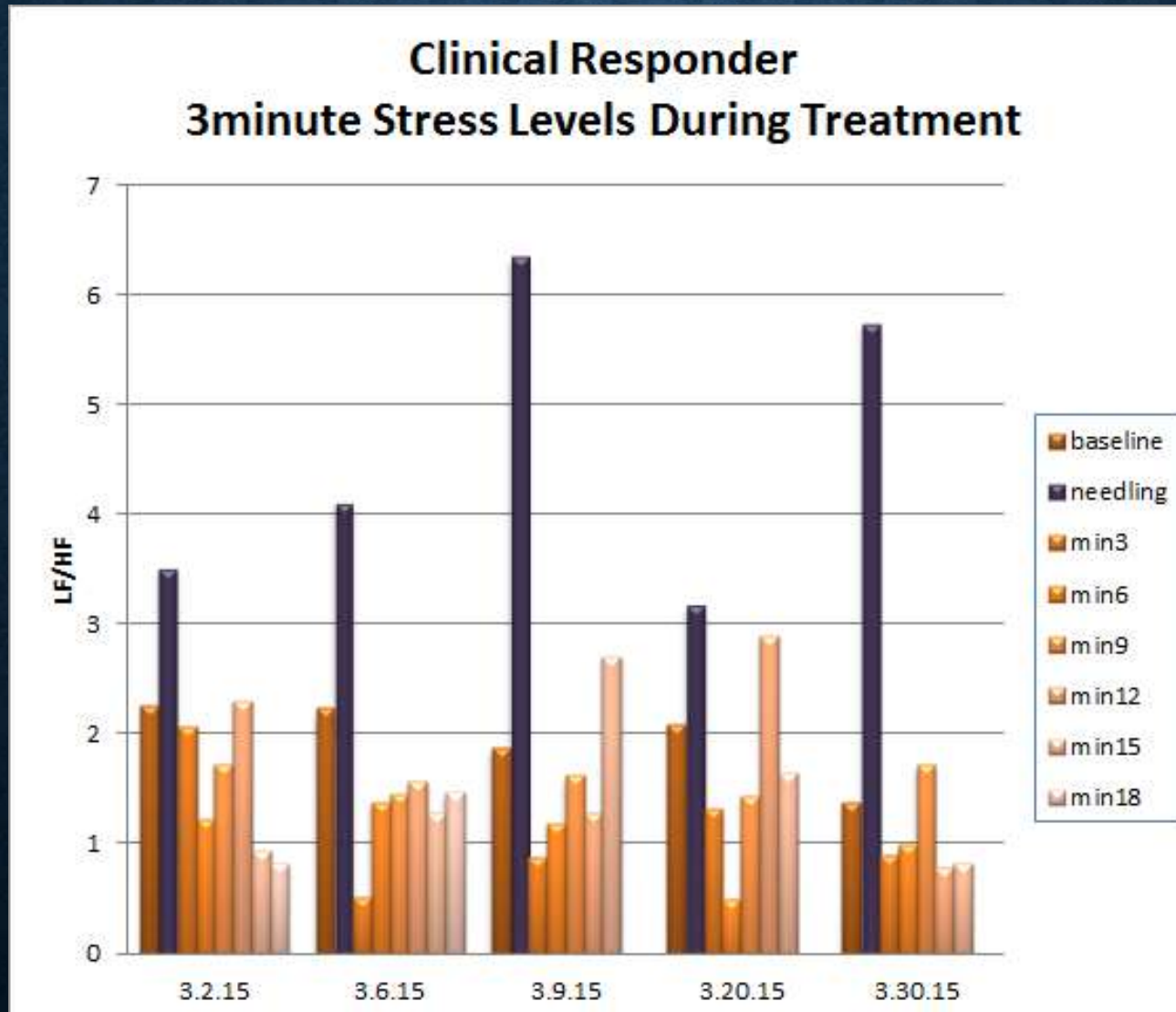
- Retrospective
- No Controls
- Nonin pulse oximeter
- Use Vivosense software with artifact correction
- Segments Presented here: Baseline, Needling, 3 minute windows on table



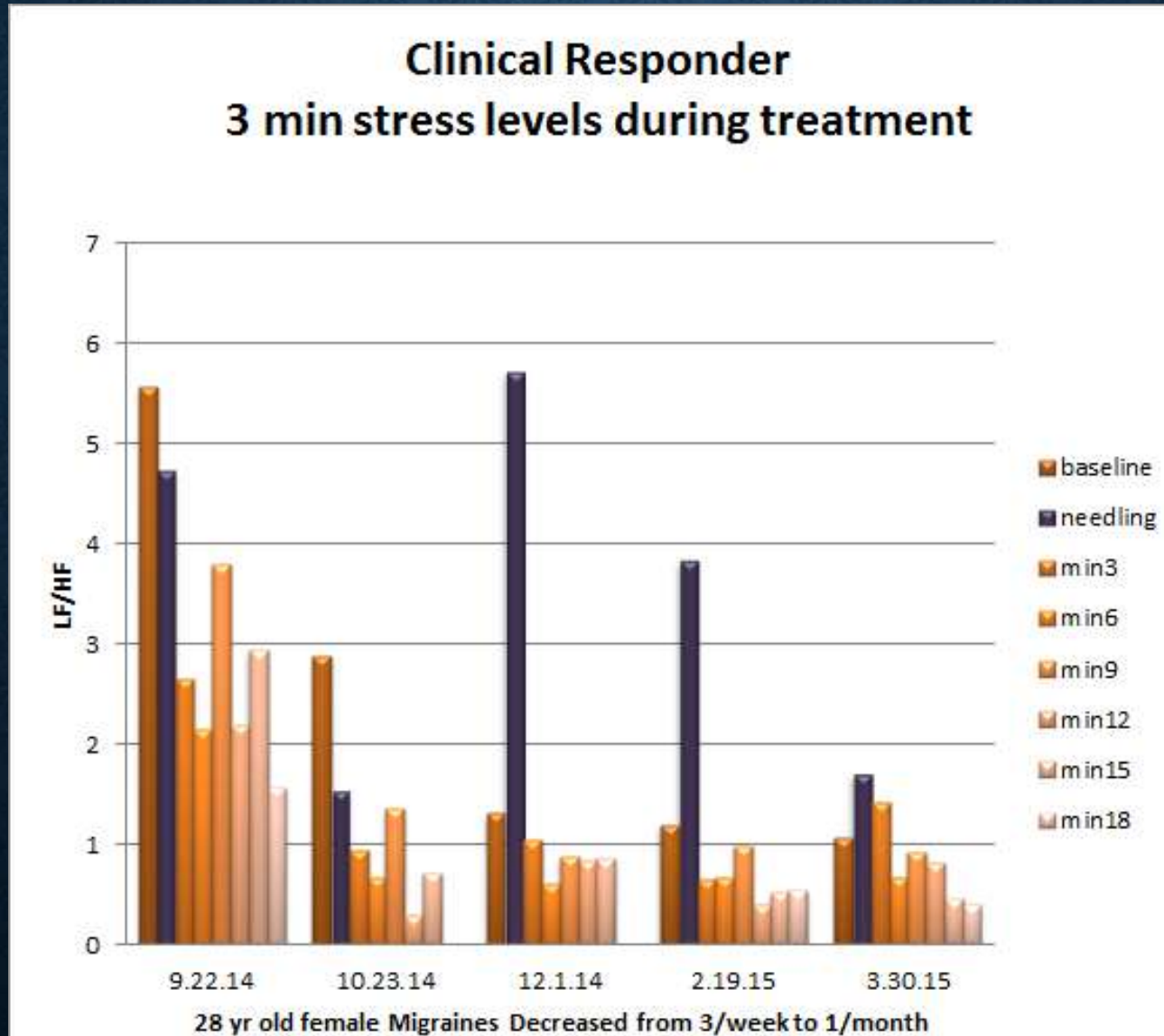
DATA!!

Good, Bad, Ugly

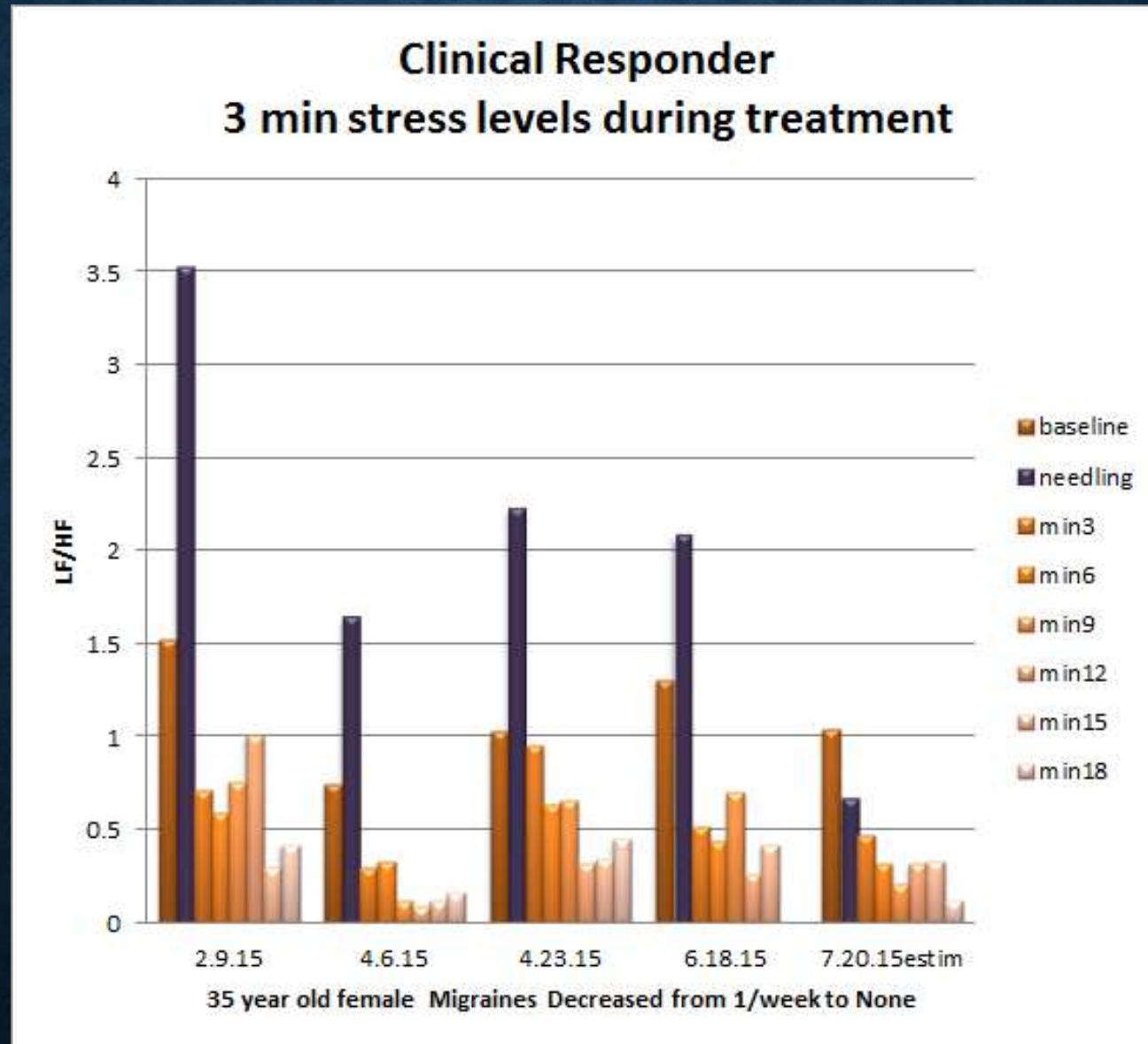
MIGRAINE PATIENTS: DATA GOOD!



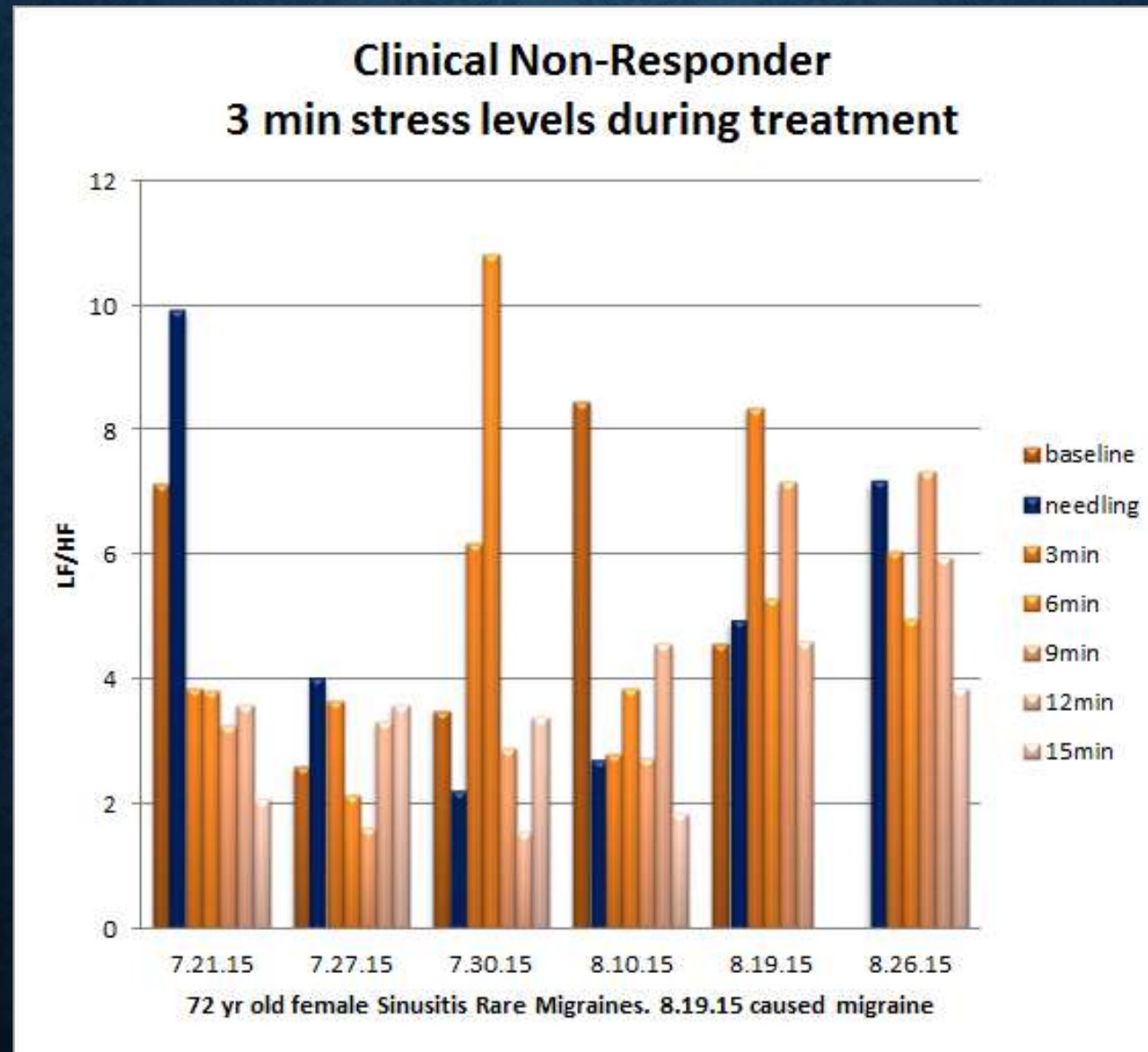
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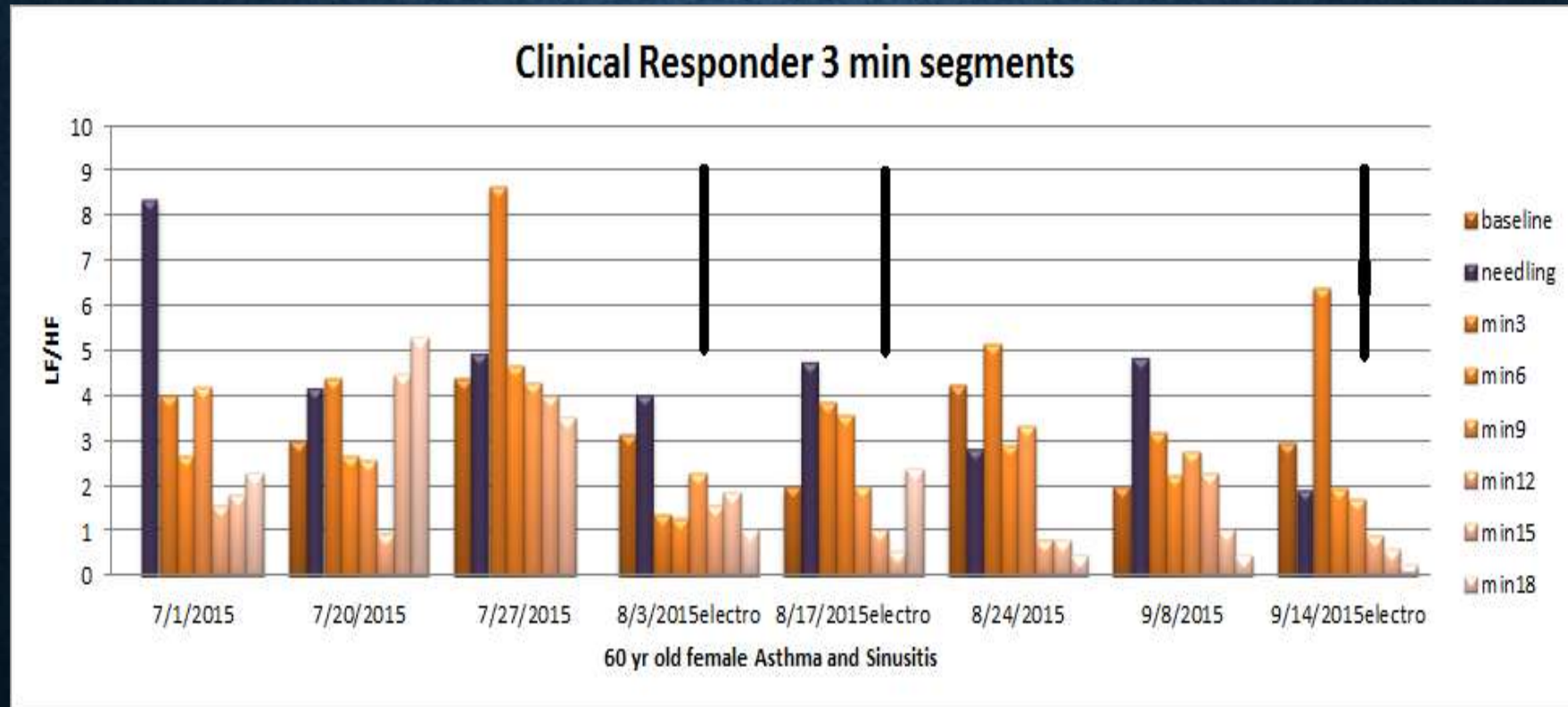
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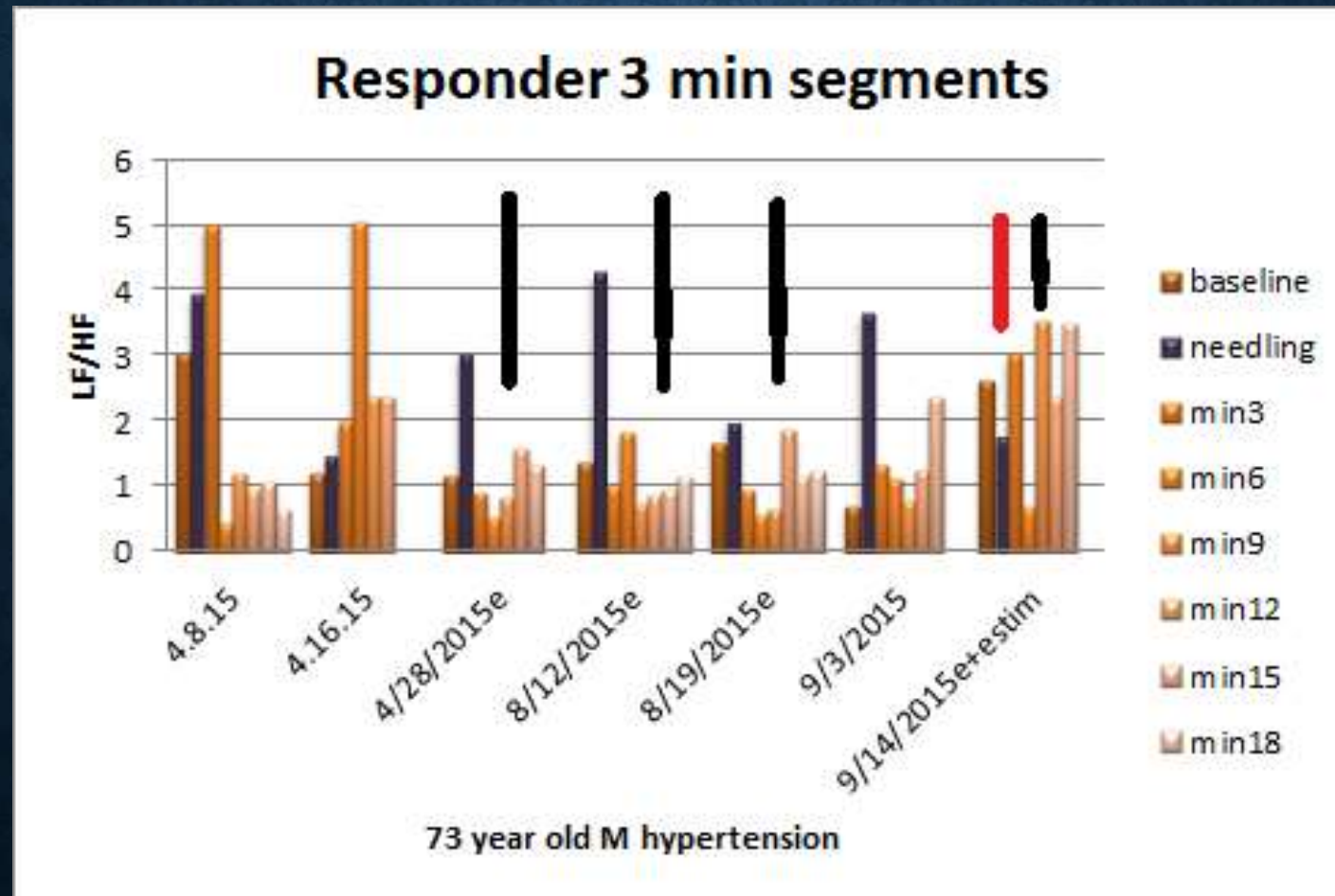
MIGRAINE PATIENTS: DATA BAD!



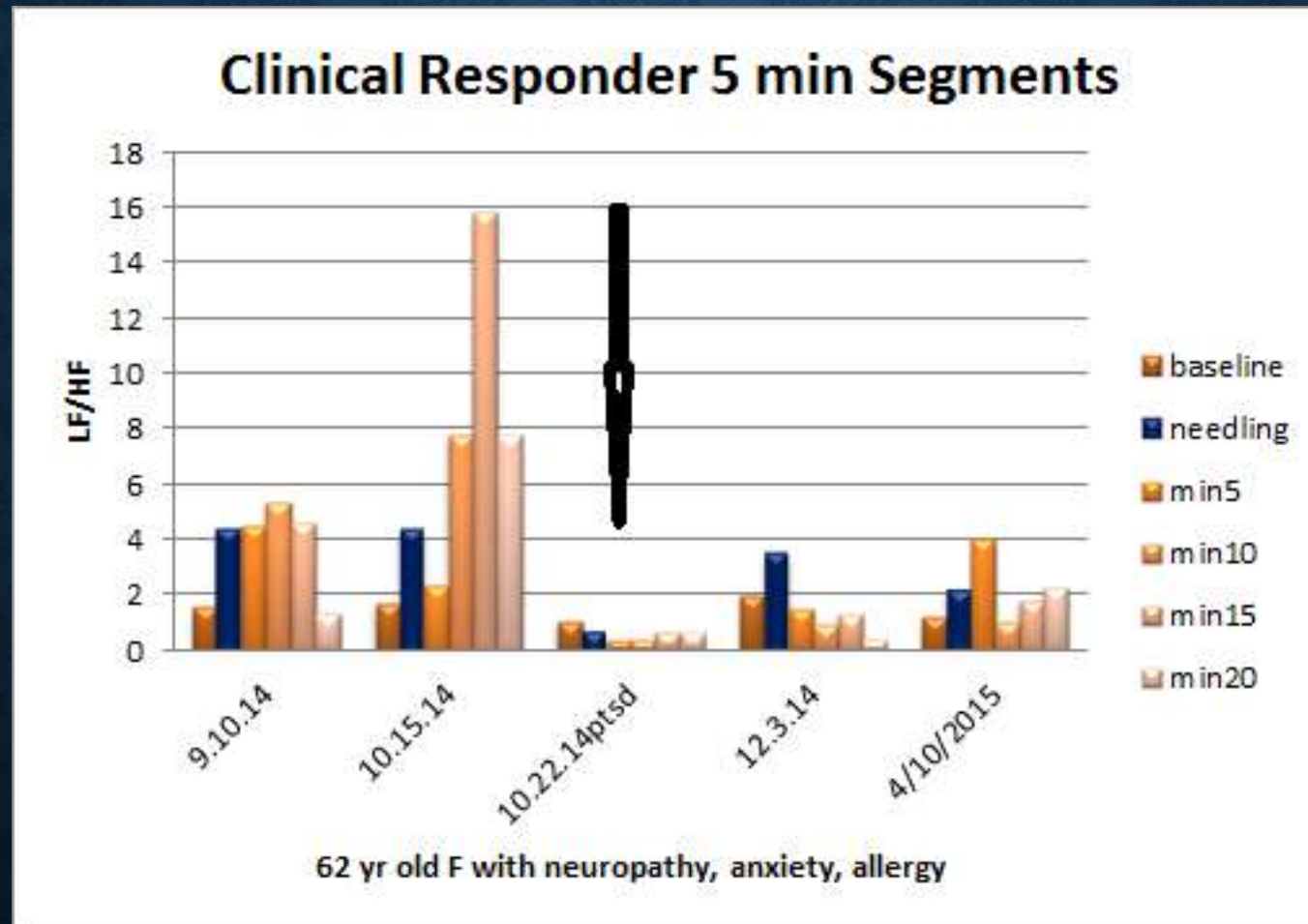
DOES ELECTRICAL STIMULATION AT 2HZ MAKE A DIFFERENCE IN HRV PROFILE?



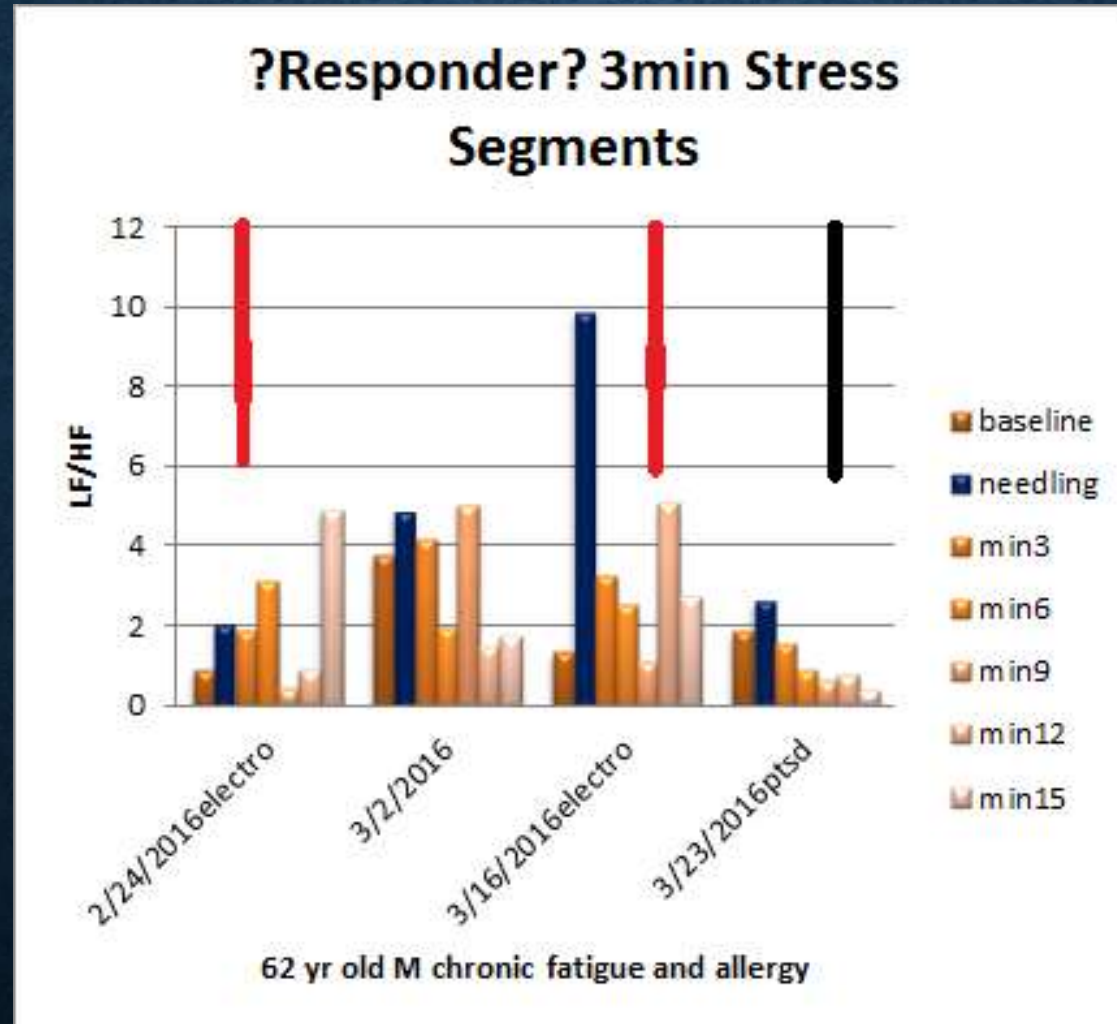
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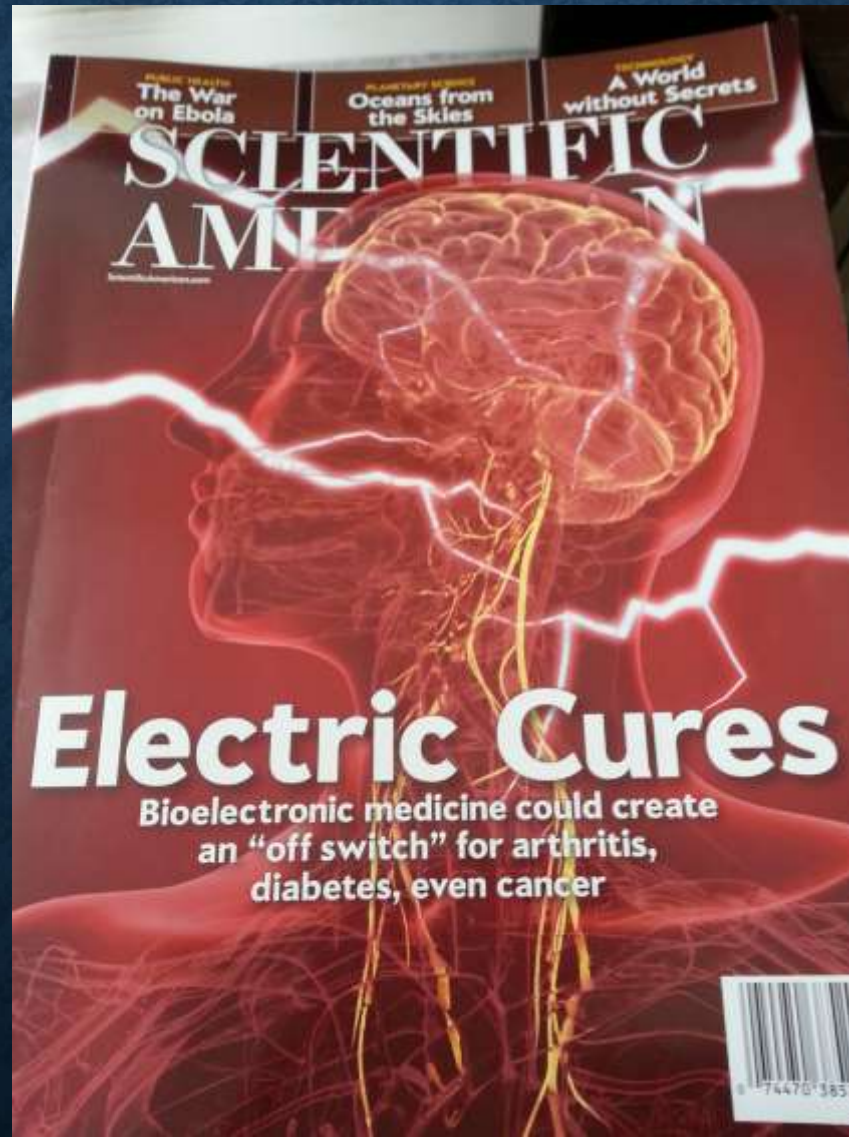
SCALP ACUPUNCTURE: PTSD PROTOCOL



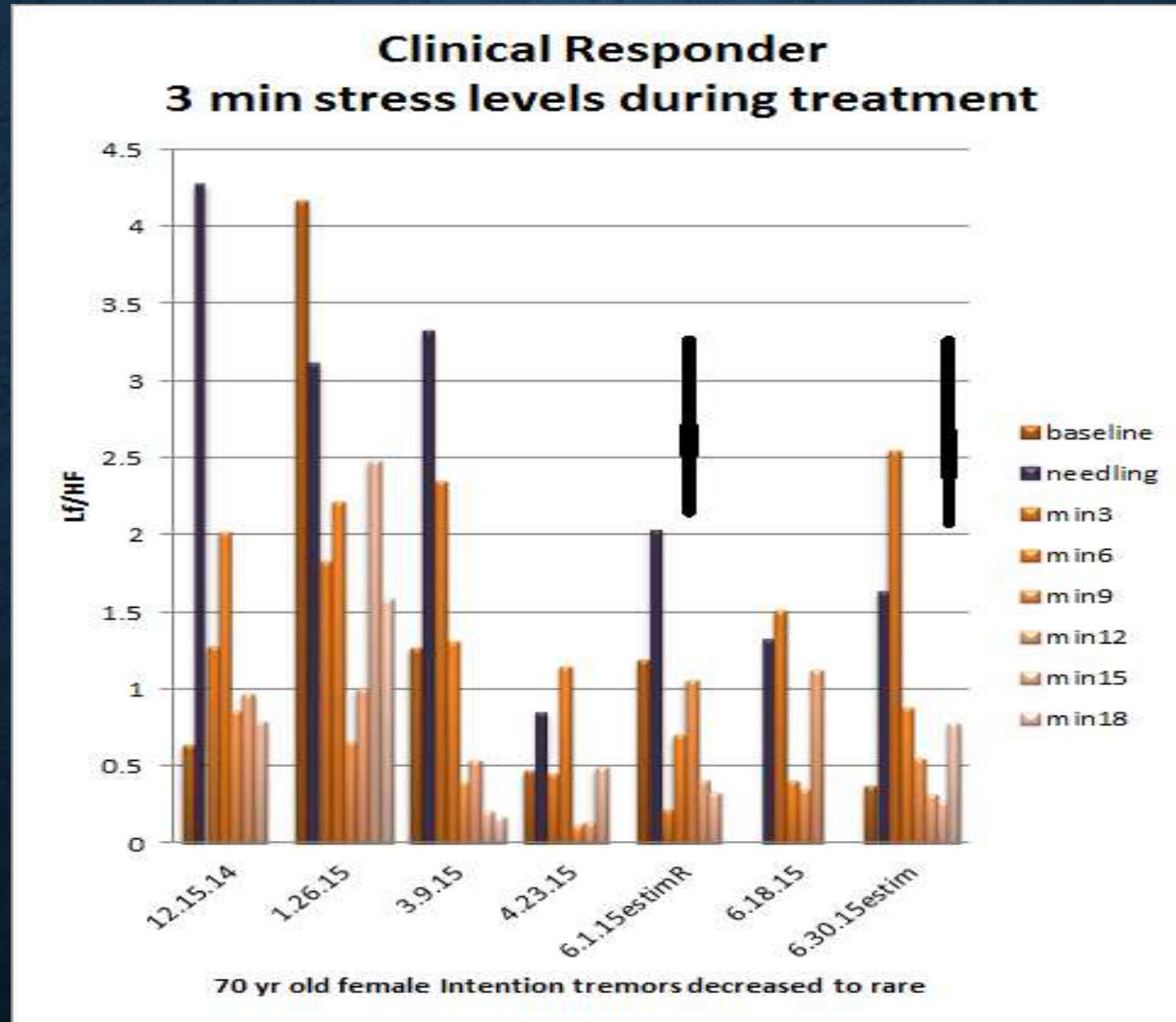
SCALP ACUPUNCTURE: PTSD PROTOCOL



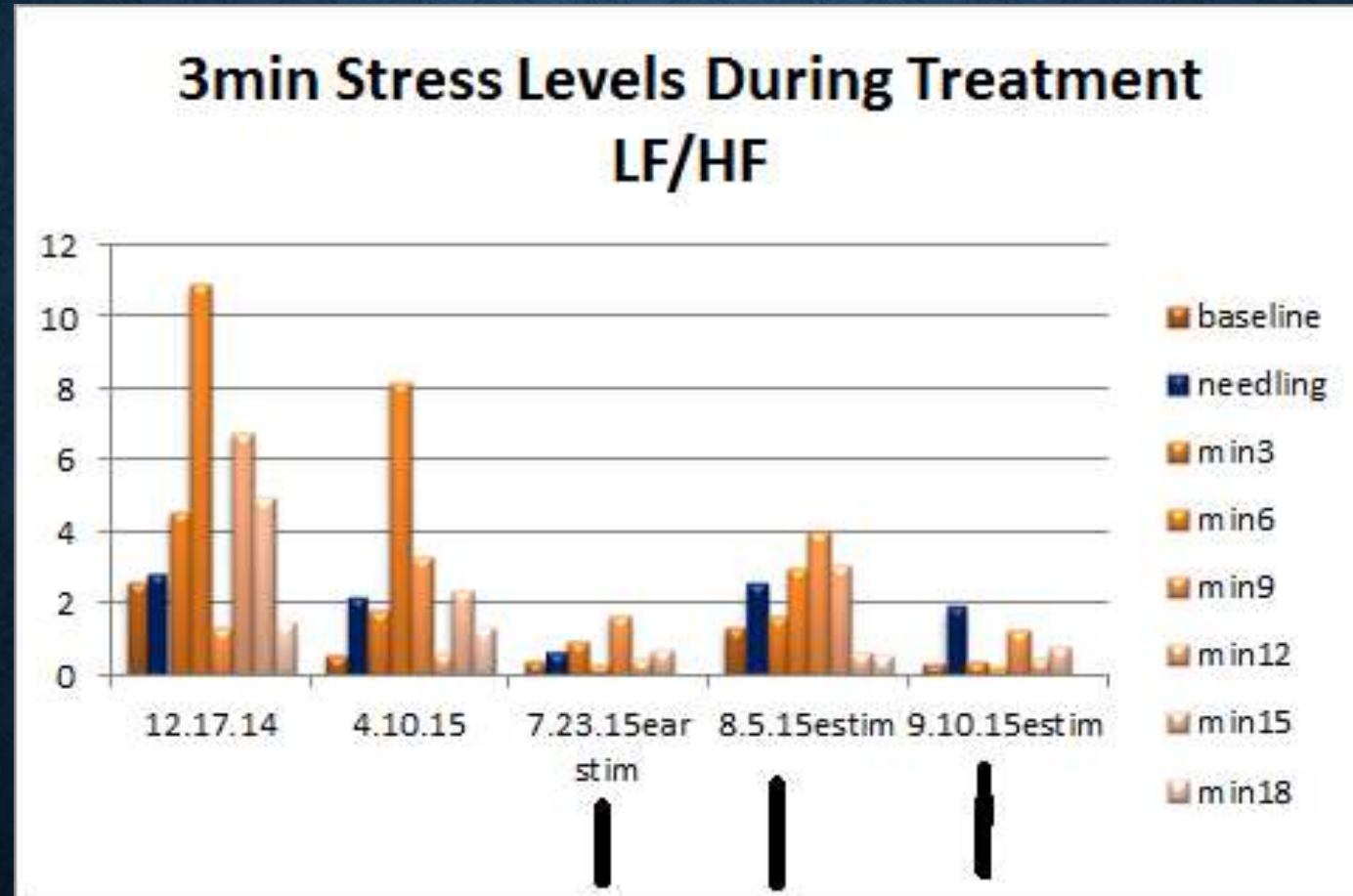
ELECTROCEUTICALS: VAGAL STIMULATION



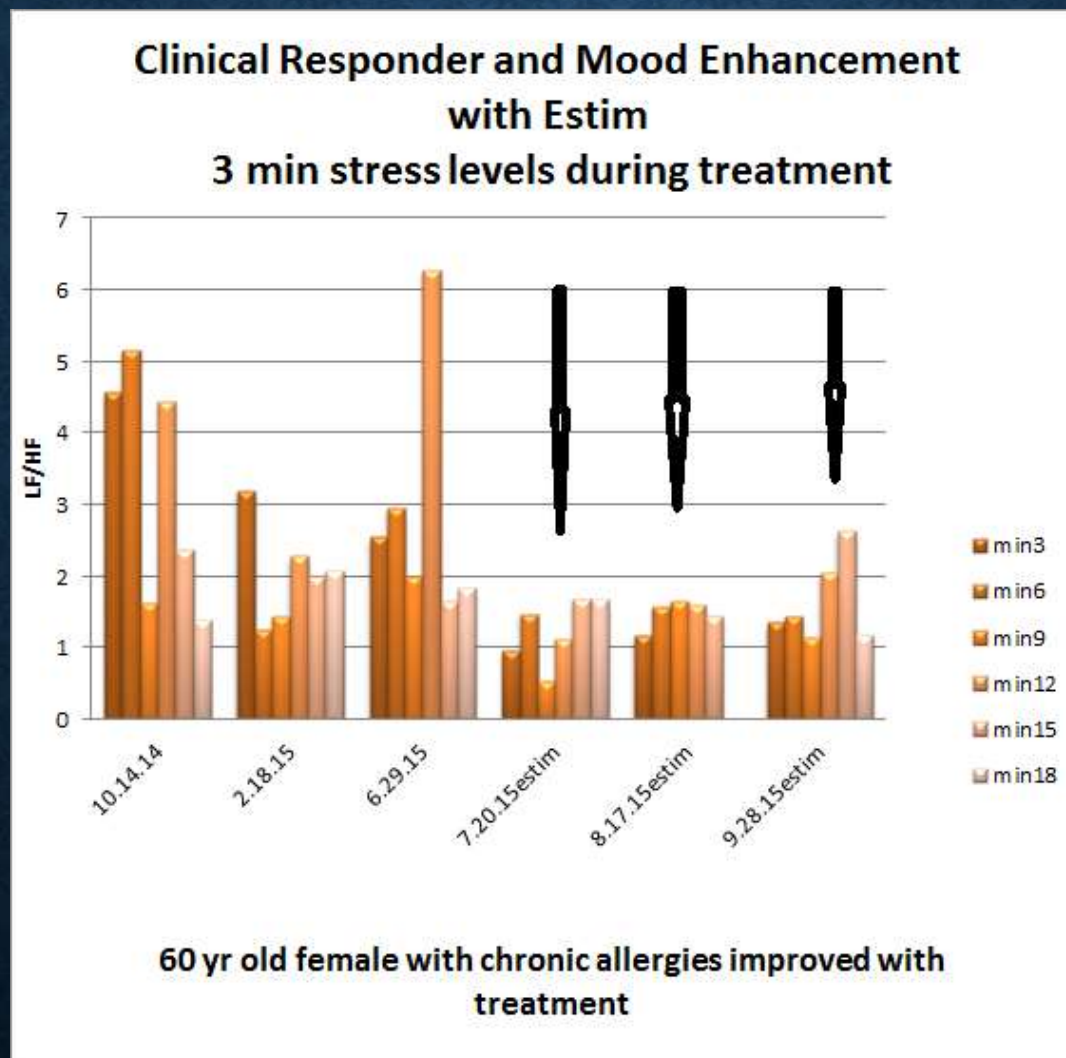
DATA USING TRANSCUTANEOUS EAR VAGAL NERVE STIMULATION ?GOOD?



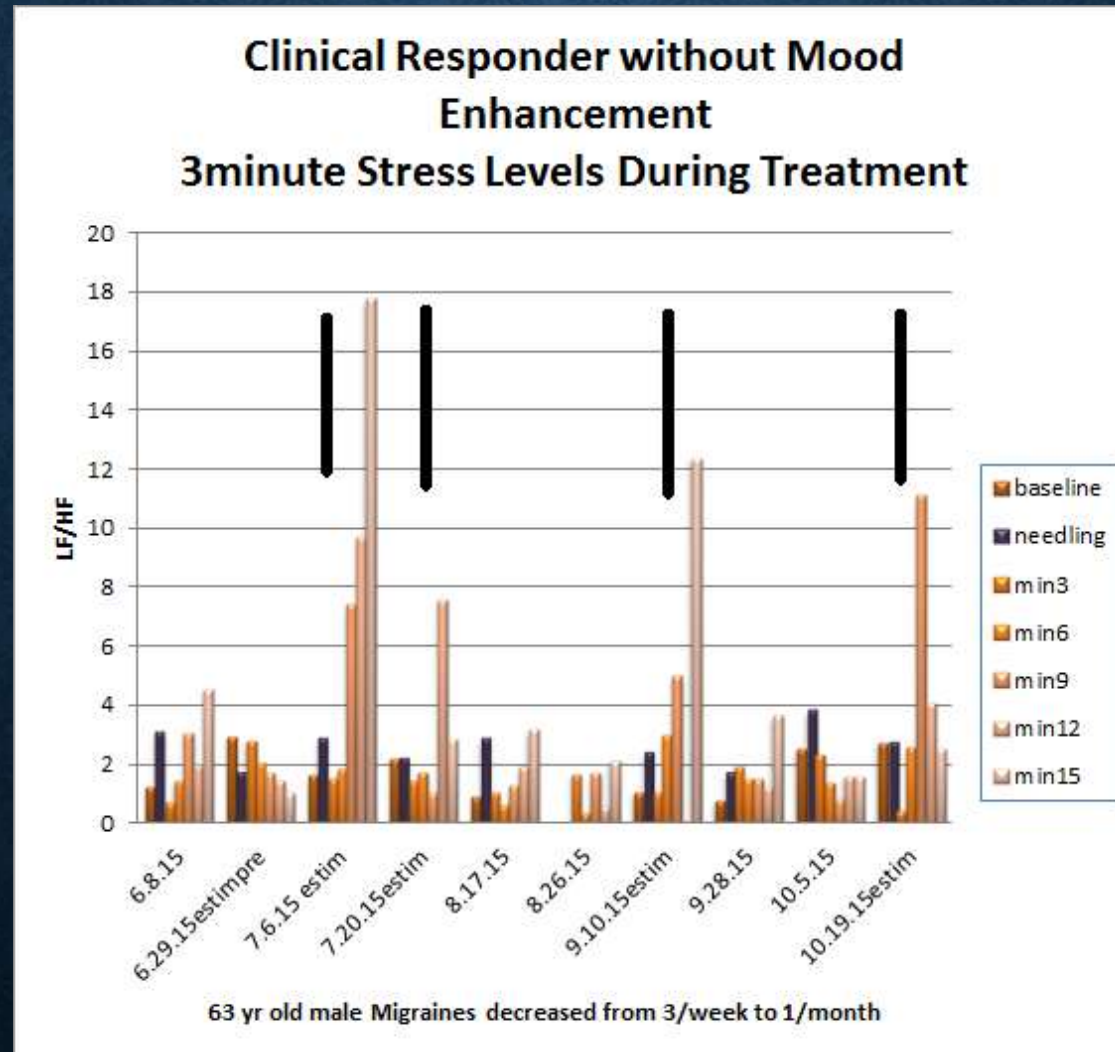
DATA USING TRANSCUTANEOUS EAR VAGAL NERVE STIMULATION: GOOD!



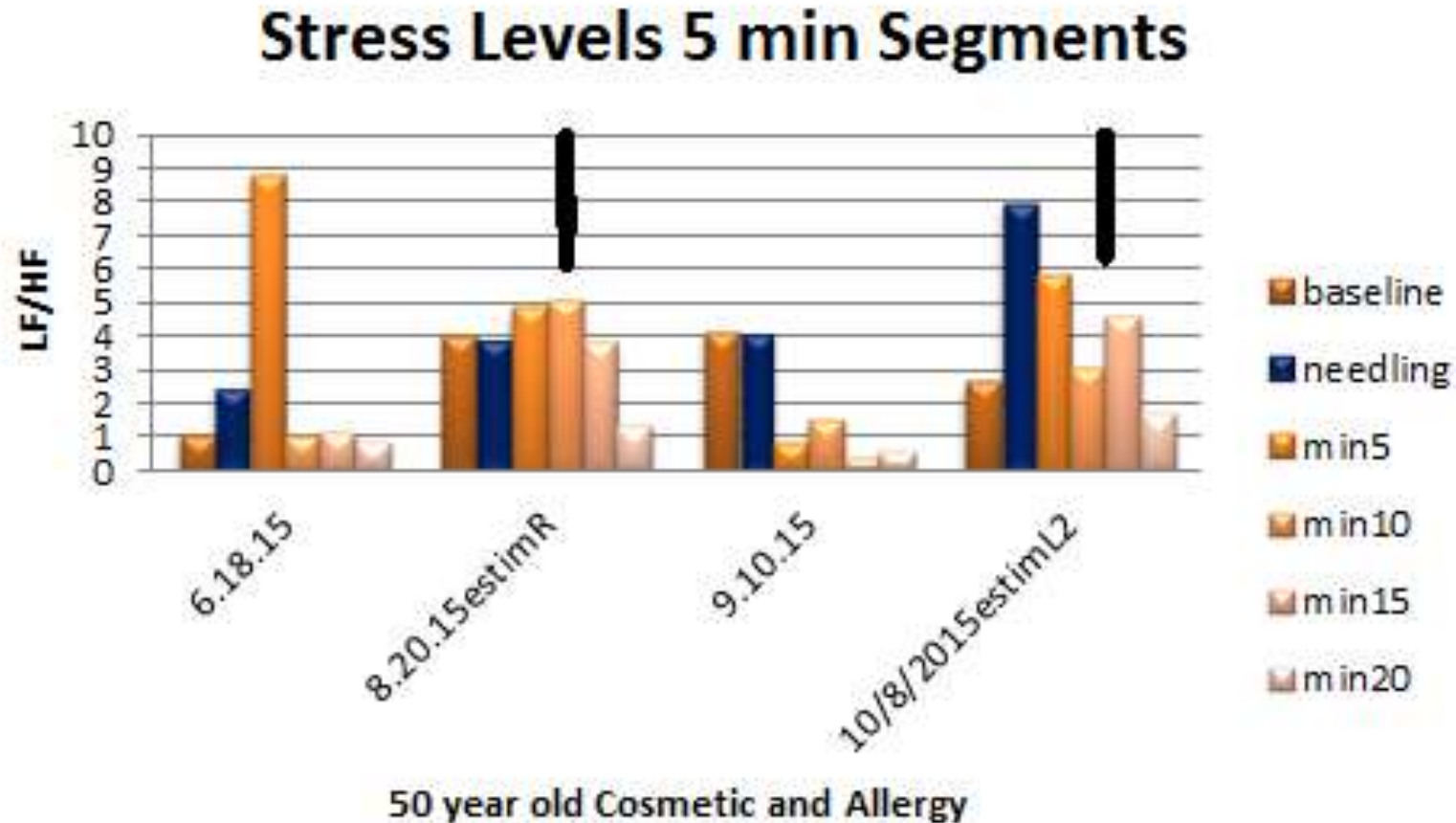
DATA USING TRANSCUTANEOUS EAR VAGAL NERVE STIMULATION: GOOD!



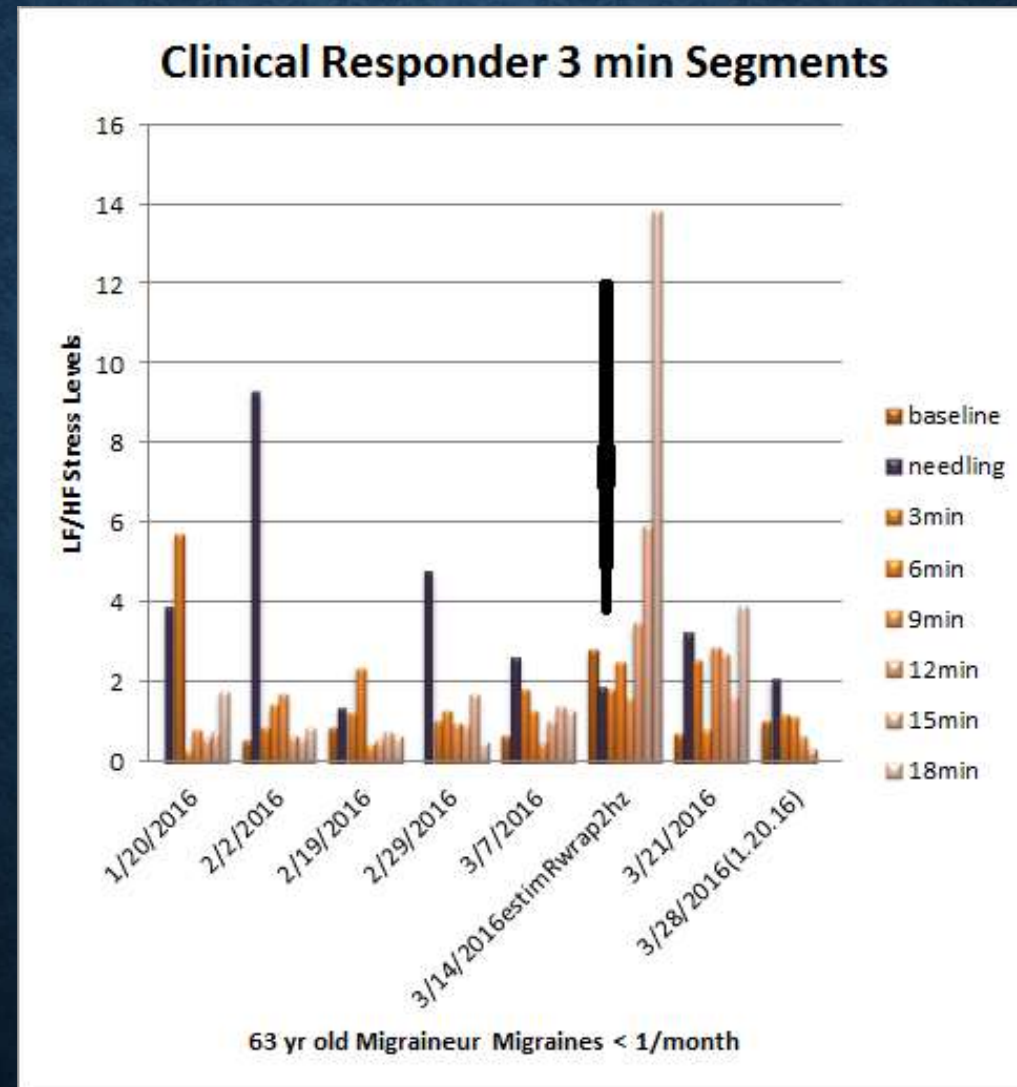
DATA USING TRANSCUTANEOUS EAR VAGAL NERVE STIMULATION: BAD!



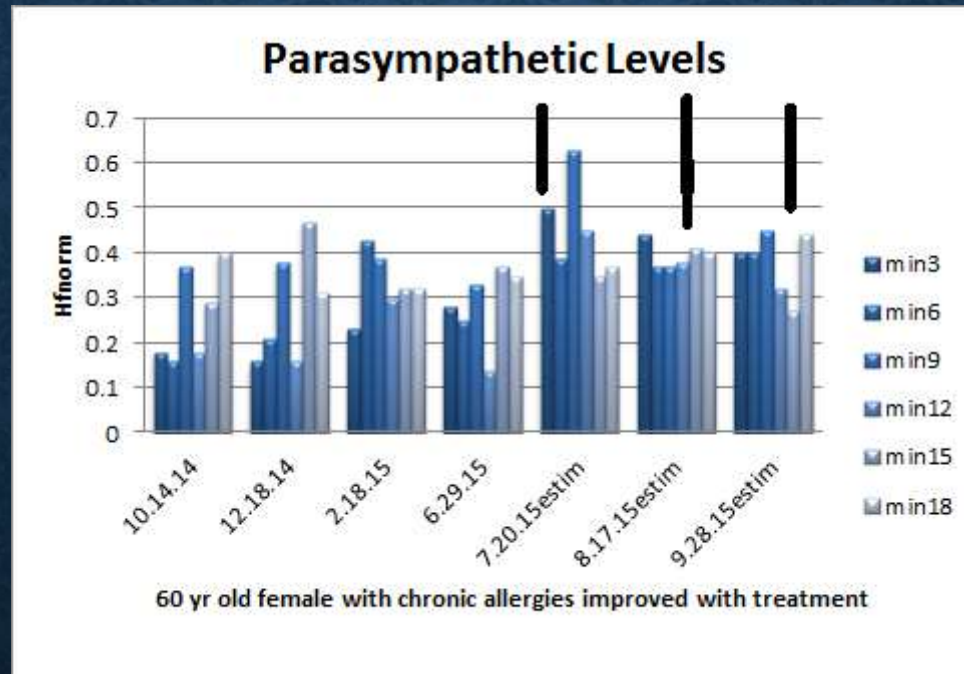
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DATA USING TRANSCUTANEOUS EAR VAGAL NERVE STIMULATION: BAD!



EAR VAGAL STIMULATION: VARYING RESULTS



CONCLUSIONS

- Protocol may or may not help in identifying effective treatment
- In some patients, scalp acupuncture may decrease stress response
- Electrical stimulation? Doesn't increase stress response after needling.
- Ear stim, on the other hand, may increase stress response in conjunction with acupuncture in some patients.

GOING FORWARD

- Hunch: We don't do enough treatment
 - Expand and extend treatment
 - Ear stim
 - Jaqueline Filschle type protocols

GOING FORWARD

Better define, segment, and determine best practices

- Response to needling more subtlety, complexity aspect
- Explore the “swings” with needling
- Use more Chinese Medicine frames

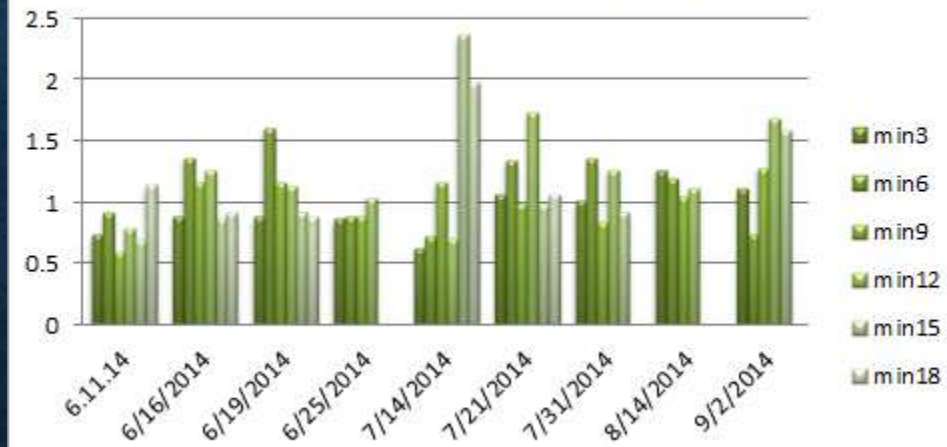
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Parasympathetic(HF) X Complexity(Sampen)



32 Year Old F Chronic Fatigue "Crisis of Cure" after 7.14.14

STRENGTHENING THE WEB