

Treating subclinical hypothyroidism with acupuncture via the HPA/HPT axis: a multiple case series



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Introduction

Subclinical hypothyroidism is defined as having TSH above normal reference range while FT4 and FT3 are normal. It is estimated that 4-10% of the population has subclinical hypothyroidism and increasing to 20% in women over 60 years of age. Previous research studies have found thyroid replacement therapy to be ineffective in patients with serum TSH from 3-5 mIU/L. Current recommendation is to monitor TSH every year.

Hans Selye introduced the general adaption syndrome (GAS) in 1956 explaining how stress effects the body.

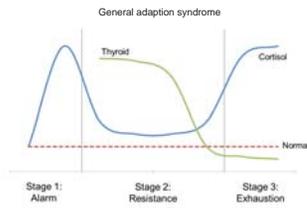


Figure 1. How stress effects thyroid and cortisol levels

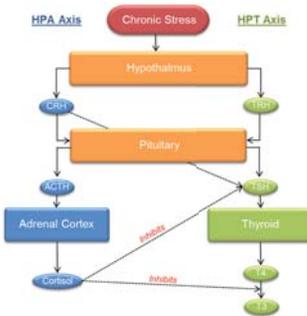


Figure 2. The neuroendocrine system's response to stress

Methods

- Two cases were studied for replication
- Subjects received 12 Japanese Meridian acupuncture root treatments based on Ikeda Masakatsu's theory
 - KI yang deficiency cold
 - SP yang deficiency cold
 - LV yang deficiency cold
 - KI/SP yang deficiency cold
- Measures
 - Salivary cortisol
 - Serum TSH, FT4, FT3
 - Perceived stress scale (PSS-10)
 - Zulewski hypothyroid symptom questionnaire

Table 1. Research protocol timeline

Measures	Acupuncture Treatment #											
	Screen	1-5	6	7-11	12							
TSH	x		x	x	x							
FT4		x	x	x	x							
FT3		x	x	x	x							
Salivary cortisol		x	x	x	x							
Perceived stress scale (PSS-10)		x	x	x	x							
Zulewski hypothyroid symptom survey		x	x	x	x							
Acupuncture 10 questions		x	x	x	x							

Results

Patient A

- 44 year old female
- Increased TSH for one year
- Divorced single mother caring for her handicapped daughter
- Full-time clinical lab scientist
- KI yang deficiency cold root treatment used for 11 treatments (Lung deficiency heat root treatment was used at #10 for an acute sore throat)
- TSH: 3.74 uIU/ml pretreatment to 3.41 uIU/ml posttreatment (Figure 5)
- FT4: 1.18 ng/dL pretreatment to 1.07 ng/dL posttreatment
- FT3: 2.8 pg/mL pretreatment to 2.3 pg/mL posttreatment
- Salivary cortisol load: 16 nM pretreatment to 36 posttreatment (Figure 6)
- Morning diurnal cortisol: 8 nM pretreatment to 21 nM post-treatment (Figure 3)
- PSS: 23 pretreatment to 35 posttreatment (Figure 7)
- Symptoms: 4 pretreatment to 3 posttreatment (Figure 8)

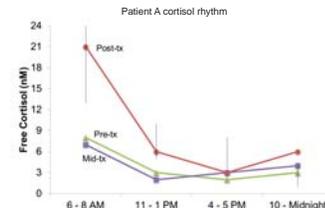


Figure 3. Patient A diurnal salivary cortisol rhythm at three points during the study. Pre-tx and mid-tx cortisol rhythms were low indicative of adrenal exhaustion (Mowen, 2000). Post-tx cortisol rhythm was normal. Vertical lines represent normal reference range.

Patient B

- 34 year old female
- Increased TSH since the birth of her daughter in January, 2011
- Married
- Stay-at-home mother, but an aspiring actress
- SP yang deficiency cold or LV yang deficiency cold root treatment used in nine treatments
- TSH: 4.87 uIU/ml pretreatment to 4.73 uIU/ml posttreatment (Figure 5)
- FT4: 1.1 ng/dL pretreatment to 1.11 ng/dL posttreatment
- FT3: 2.2 pg/mL pretreatment to 2.2 pg/mL posttreatment
- Salivary cortisol load: 21 nM pretreatment to 28 posttreatment (Figure 6)
- Morning diurnal cortisol: 5 nM pretreatment to 10 nM post-treatment (Figure 4)
- PSS: 35 pretreatment to 31 posttreatment (Figure 7)
- Symptoms: 4 pretreatment to 2 posttreatment (Figure 8)

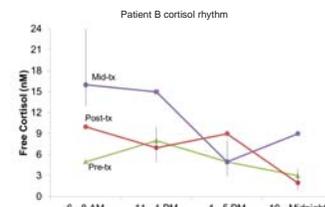


Figure 4. Patient B diurnal salivary cortisol rhythm at three points during the study. Normal diurnal cortisol rhythm is highest at waking and declines throughout the day reaching a low during sleep. The patient had low morning cortisol at pre- and post-treatment which is indicative of adrenal insufficiency (Törnhaage, 2009). Vertical lines represent normal reference range.

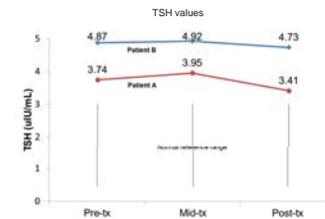


Figure 5. Patient A & B TSH values at three points during the study. Vertical lines represent the normal reference range of 0.3 - 3.0 uIU/L.

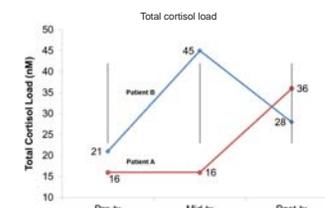


Figure 6. Patient A & B total cortisol load versus normal range of 23 - 42 nM. Low cortisol load is indicative of Selye's adrenal exhaustion stage.

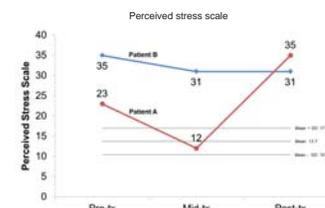


Figure 7. Patient A & B perceived stress at three points during the study versus the validated population norm for females of 13.7 with a standard deviation of 6.6.

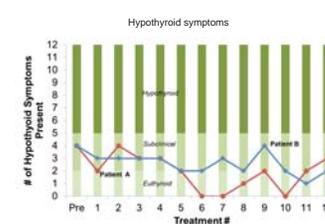


Figure 8. Patient A & B number of hypothyroid symptoms present based on the Zulewski score. Hypothyroid = > 5 symptoms; euthyroid = < 3 and intermediate or subclinical = 3 - 5 symptoms present. The validated mean for subclinical is 3.4 ± 2.0.

Conclusion

Acupuncture:

- Lowers serum in TSH
- Reduces number of hypothyroid symptoms
- Increases salivary cortisol load
- Increases morning diurnal cortisol

Acupuncture is a possible viable treatment option for subclinical hypothyroidism. This study looked at acupuncture as an intervention for internal medicine symptom relief, as well as disease prevention. Further large scale studies need to be conducted to validate these findings.

Manualized treatment protocols need to be established to allow replicability, but flexible enough to accommodate for unexpected patient variability. By treating the presenting pattern and not treating a biomedical diagnosis, this will allow for scientifically rigorous research that still reflects Asian medicine's use in a clinical setting.

Citations

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