

Treatment of hypothyroidism using Korean medicine: 2 case reports

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Abstract

Introduction: Hypothyroidism, the most common endocrine disease, comprises a deficiency of thyroid hormone, causing coldness, fatigue, and dysmenorrhea. Here, we report the improvement of hypothyroidism symptoms and thyroid hormone level normalization by using Korean herbal medicine and acupuncture therapy.

Patient concerns: A 30-year-old woman (Case 1) presented at the clinic with continuous seborrheic dermatitis on the scalp, accompanied by dysmenorrhea. A 55-year-old woman (Case 2) presented with symptoms of coldness of the limbs and fatigue.

Diagnosis: Both patients were diagnosed with “Yin deficiency and Yang hyperactivity” and hypothyroidism after serum thyroid function tests.

Interventions: Both patients received herbal medicine decoction, acupuncture, and electroacupuncture therapy.

Outcomes: Korean medicine improved the symptoms of hypothyroidism and significantly normalized thyroid-stimulating hormone and free-thyroxine levels.

Conclusion: These outcomes suggest that Korean medicine may be effective for resolution of hypothyroidism; however, further research is needed to confirm these findings.

Abbreviations: fT4 = free-thyroxine, TSH = thyroid-stimulating hormone, VAS = visual analogue scale.

Keywords: acupuncture, case reports, hypothyroidism, Korean medicine, thyroid function test

1. Introduction

Hypothyroidism, the most common endocrine disorder, is caused by malfunction of the thyroid gland, which produces thyroid hormone.^[1] Hypothyroidism is primarily diagnosed by thyroid

function test, which measures the amounts of thyroid-stimulating hormone (TSH), free-thyroxine (fT4), and triiodothyronine (T3) in whole blood.^[2] The prevalence of hypothyroidism is 4–15% worldwide; in Korea, hypothyroidism affects 14% of the total population, which is a relatively large proportion.^[3–5] Primary symptoms of hypothyroidism include dry skin, increased sensitivity to cold, chronic fatigue, muscle cramps, constipation, and hoarseness. Dysmenorrhea can also occur.^[2]

Levothyroxine supplementation is the standard and primary method for treatment of hypothyroidism. Hypothyroidism patients must maintain a precise dosage of levothyroxine to prevent side effects, such as nausea, vomiting, diarrhea, headache, and muscle cramps.^[6,7] Although most patients comply with levothyroxine drug therapy and the level of TSH is generally normalized,^[8] a subset of symptoms that accompany hypothyroidism, such as neurologic disorders, are not entirely eliminated.^[9,10] Furthermore, it remains controversial whether patients with subclinical hypothyroidism should be administered levothyroxine. The levothyroxine administration adherence rate has decreased in proportion to the treatment duration.^[11] Novel treatments are required to appropriately manage overall health care for affected patients.

Complementary and alternative medicine (CAM) also plays a role in the treatment of hypothyroidism, as it enhances patients' quality of life. Case studies have been published regarding the application of acupuncture in patients with hypothyroidism; they have shown effectiveness in treatment of thyroid dysfunction.^[12–14] Herbal medicines have been applied to patients with hypothyroidism, and have been successful for improvement of edema, nocturnal enuresis, fatigue, and anorexia.^[15] However, there have been no clinical trials regarding the effects of CAM (eg, herbal medicine and acupuncture)

Editor: N/A.

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The authors report no conflicts of interest.

This study was supported by the Korea Institute of Oriental Medicine (KSN1522121).

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How to cite this article: Kim H, Moon SY, Han K, Lee JH, Im JH, Kim S, Yoo JE. Treatment of hypothyroidism using Korean medicine: two case reports. *Medicine* 2020;99:18(e19737).

Received: 1 May 2019 / Received in final form: 9 January 2020 / Accepted: 4 March 2020

<http://dx.doi.org/10.1097/MD.00000000000019737>

on hypothyroidism and thyroid hormone release. Therefore, we report 2 cases in which hypothyroidism symptoms were alleviated by using Korean medicine, as evaluated by thyroid function test.

2. Case presentation

This report describes 2 patients with hypothyroidism who were treated at the Chun-Jin Korean Medicine Clinic (South Korea). The Institutional Review Board of the Korean Institute of Oriental Medicine approved this study (KIOM I-1710/002-001), and informed written consent was obtained from both patients for publication of this case report and accompanying images.

2.1. Case 1

A 30-year-old woman visited the clinic with the complaint of continuous seborrheic dermatitis on scalp with symptoms of itching (visual analogue scale, VAS 10), erythema, and scaliness, despite sporadic usage of steroid drug and ointments for 10 years. In addition, hair line was reddish red. She also experienced dysmenorrhea with black menstrual blood. Her menstrual period had been present once every 2 to 3 months since 2008, following headache and low back pain. The patient reported VAS rating of 10 for both seborrheic dermatitis and menstrual pain.

A Korean medicine doctor with 15 years of experience diagnosed this patient with “Yin deficiency and Yang hyperactivity,” a type of pattern identified in Korean medicine, based on the symptoms including a feeling of heat, sweating on the face, insomnia, dysmenorrhea, and coldness of lower extremities.^[16]

To evaluate thyroid function, serum TSH and fT4 levels were measured from baseline to the end of treatment using a blood analysis device (I-Chroma, Biotechmed Inc., Chungcheon-si, Gang-won-do, Republic of Korea). Primary hypothyroidism was diagnosed based on TSH and fT4 levels of 76.18 µIU/mL and 63.8 nmol/L, respectively.

The patient underwent treatment with acupuncture and herbal medicine, based on the Yin deficiency and Yang hyperactivity pattern (Fig. 1). The herbs were administered 3 times per day for 1 month. Acupuncture needles (0.25 mm diameter, 30 mm length; Woojin Acupuncture Corporation, Seoul, South Korea) stimulated the following points: CV17, EX2, CV12, CV4, LI4, LV3, and ST36. Electroacupuncture was

also used to stimulate those same acupoints at 1 to 2 Hz for 10 minutes per session (STN-330, StraTek Co., Ltd., Anyang, Republic of Korea). The composition and dosage of herbal medicine decoction are shown in Table 1. Acupuncture was applied 25 times over a period of 4 months.

After 1 month of treatment, the patient’s scalp color changed from dark red to white, despite residual scales (Fig. 2). The dysmenorrhea was improved, whereas the yellowish vagina discharge remained at the time of the third visit in June 2016. After 1 month of herbal medicine administration and 25 acupuncture treatments, the scalp itchiness had nearly vanished, and only appeared upon alcohol consumption. The patient’s menstrual cycle became consistently 29 days in length and no further blood clots were released. Her VAS rating for menstrual pain decreased from 10 to 2; her VAS rating for scalp itchiness decreased from 10 to 3 after treatment and scaly scalp was obviously reduced (Fig. 2). Her TSH level decreased from 76.18 to 3.61 µIU/mL, and fT4 level increased from 63.8 to 154.1 nmol/L (Table 2). The fT4 level was relatively high, but TSH level normalized with no symptoms of hypothyroidism; hence, treatment was terminated after 1 month of herbal medicine administration and 25 sessions of acupuncture treatment. Treatment was well tolerated with no adverse events reported. After 14 months of follow-up, TSH and fT4 levels were maintained.

2.2. Case 2

A 55-year-old woman had experienced coldness of the limbs, as well as shoulder and low back pain, since November 2015. She was originally diagnosed with hyperthyroidism in 2011 and had taken thyroxine suppression therapy for 6 months. She had a history of hysterectomy in 2011. She also had hypersensitivity to coldness, eyelid twitching, and chronic fatigue. Her VAS rating for coldness and back pain was 10.

As in Case 1, this patient was diagnosed with ‘Yin deficiency and Yang hyperactivity,’ based on the symptoms of a feeling of heat, and coldness of lower extremities, and diagnosed with primary hypothyroidism based on TSH and fT4 levels (TSH, 9.95 µIU/mL; fT4, 80.4 nmol/L). She received acupuncture and herbal medicine in the same manner as the patient in Case 1 (Table 1 and Fig. 3).

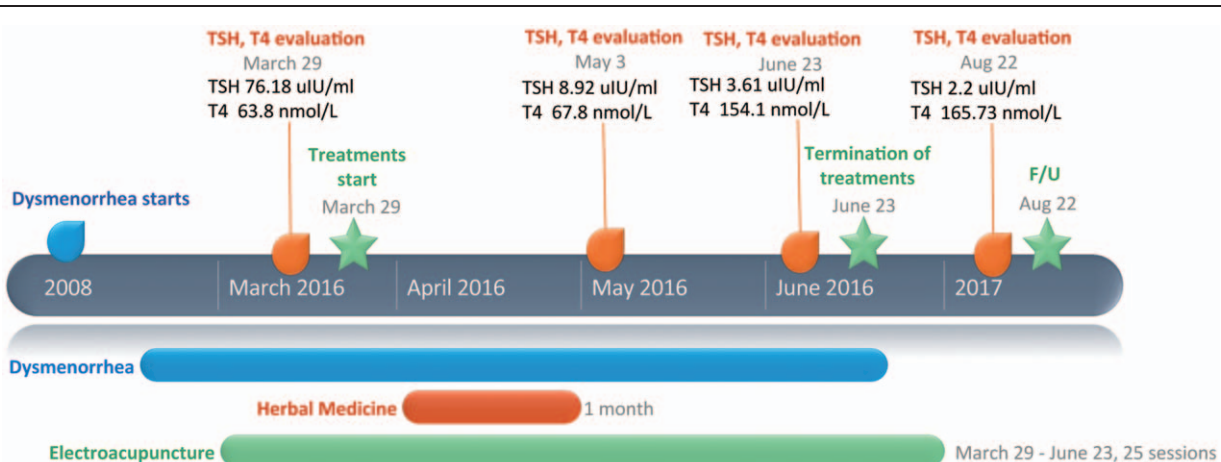


Figure 1. Flow chart depicting treatment in Case 1.

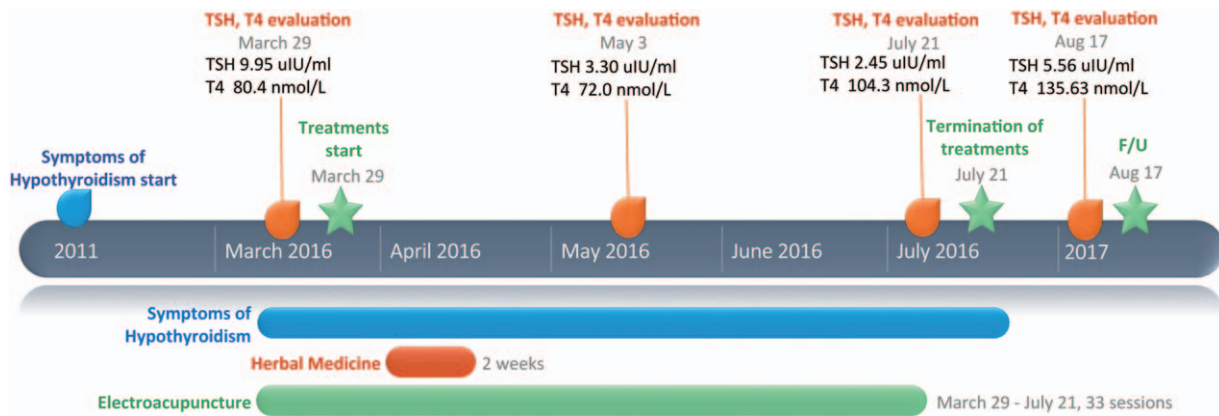


Figure 3. Flow chart depicting treatment in Case 2.

Table 3
Thyroid function test values of Case 2 before, during and after treatment(s).

Before treatment (March 29, 2016)	During treatment (May 3, 2016)		After treatment (July 21, 2016)		Follow-up (August 17, 2017)		
TSH, * μIU/mL	T4, nmol/L [†]	TSH, * μIU/mL	T4, nmol/L [†]	TSH, * μIU/mL	T4, nmol/L [†]	TSH, * μIU/mL	T4, nmol/L [†]
9.95	80.4	3.30	72.0	2.45	104.3	5.56	135.63

T4 = thyroxine, TSH = thyroid-stimulating hormone.

* 0.40 < Normal range < 1.99.

† 60 < Normal range < 109.

production.^[22,23] Portions of herbs can be used to manage symptoms of hypothyroidism. *Bupleuri Radix* repairs menstrual disorders,^[24] while *Atractylodis Rhizoma Alba* and *Lycii Fructus* exhibit antidiabetic and antiaging effects.^[25,26] Nearly all of these herbs can nourish Yin and send pathogenic fire downward.

TSH is a primary barometer for determination of thyroid function.^[27] Although both patients exhibited high TSH levels above the upper limit of the normal range at baseline, both patients' TSH levels were normalized after Korean Medicine treatment. In this case series, this treatment was administered for primary hypothyroidism, but it could be used for patients with menopausal disorder, or partial androgen deficiency of aging males (PADAM) diagnosed with "Yin deficiency and Yang hyperactivity."

Previous case series reported that Korean medicine using a combined treatment of herbs and acupuncture improved hypothyroidism.^[28,29] Herbal medicines, including Leejoong-tang, Bojungikqi-tang, and Saenggangeonbi-tang, were prescribed under similar diagnoses ("Yin deficiency and Yang hyperactivity).” The treatment period ranged from 40 to 184 days. Although the treatment period could be different based on the severity of symptoms, this study had the shortest period of herbal administration.

There were limitations in this case series. We used combination therapies, including a complex formulation of herbs, as well as acupuncture. It is difficult to determine which therapy provided the greatest contribution. Nevertheless, this is the first case series to describe the use of Korean medicine to treat patients with hypothyroidism. Our findings suggest that further studies may be useful to determine the effects of Korean medicine in treatment of thyroid function disorders.

Acknowledgments

The authors thank the participants and contributors in both cases.

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