Three cases of atopic dermatitis in pregnant women successfully treated with Korean medicine

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KEYWORDS
Atopic dermatitis; Pregnancy; Korean medicine; Herbal medicine; Acupuncture

Summary

\textbf{Background:} Korean medicine (KM) is used in many patients with atopic dermatitis (AD), which is commonly aggravated during pregnancy. However, to date, no previous studies have reported the safety and efficacy of complementary and alternative medicine (CAM) therapy for pregnant patients with AD and their fetus in clinical practice.

\textbf{Subjects:} Three pregnant women were suffering from AD that first appeared or was aggravated during pregnancy. They would not have received conventional treatments for AD during their pregnancy.

\textbf{Interventions and outcome measures:} They were treated with KM, including acupuncture, herbal medicine, and herbal wet dressing. The severity of AD was assessed with the SCORAD (Severity Scoring Atopic Dermatitis) index. Liver and renal function tests were performed. We noted adverse events on maternity, fetus or neonate and evaluated the side effects of KM therapy.

\textbf{Results:} AD symptoms improved after treatment. There was no hepatic or renal toxicity, nor were there any adverse maternal, fetal or neonatal effects.

\textbf{Conclusions:} This study is meaningful as the first case series of AD in pregnant women successfully treated with KM therapy including herbal medicine, acupuncture, and herbal wet dressings.

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Introduction

AD is the most common dermatosis of pregnancy, accounting for between one-third and one-half of all cases.\textsuperscript{1-3} According to a previous study, 52\% of female AD patients experience exacerbation of their condition during pregnancy, while 24\% notice improvement.\textsuperscript{4}

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Various conventional treatments have been reported in terms of efficacy and safety for AD. Topical corticosteroids are most frequently used for mild to moderate AD. However, safety of topical corticosteroids during pregnancy has been limited. Therefore, only small amounts of topical corticosteroids are usually recommended to pregnant patients with AD. Oral steroids, cyclosporine, and topical calcineurin inhibitors are also recommended only in small doses. PUVA (psoralen plus ultraviolet A), methotrexate and other such systemic drugs are prohibited during pregnancy. Therefore, conventional treatment of AD during pregnancy mainly emphasizes avoidance of triggering factors and maximizing the use of emollients. However, this is usually not sufficient to control severe and/or worsening AD.

Therefore, there is a need for effective and safe treatments for AD during pregnancy beyond conventional treatments. Many pregnant women are now using complementary and alternative medicine (CAM) treatments as adjunctive therapies. There have been no studies of CAM for AD in pregnant women yet. Our report details three cases of AD in pregnant women who were successfully treated with Korean medicine (KM).

Methods

Case report

For this study, we included three pregnant women with AD, diagnosed using Hanifin and Rajka criteria, who were undergoing both outpatient and inpatient care at Department of Dermatology of Korean Medicine, Kyung Hee University Hospital. Written informed consent was obtained from each patient (Table 1).

Treatments

Patients received treatments using acupuncture, herbal medicine, and herbal wet dressings. All prescriptions were prepared and administered by a doctor of Korean medicine (DKM) with clinical and research experience for 20 years. We used herbal medicine after the second trimester of pregnancy and other treatments were performed during all trimesters. Patients did not receive any conventional treatment during pregnancy.

Acupuncture needles (0.25-mm diameter and 40-mm length, Dong Bang, Gyeonggi-do, Korea) were manually inserted subcutaneously or intramuscularly. Needle retention time was 15 min. Acupuncture points included both sides of EX-HN3, LI4, LI11, ST36, and LR3. About ten local points of acupuncture were also used on AD lesions. Acupuncture treatment was provided twice per day during inpatient treatment and either once a week or every 2 weeks during outpatient treatment.

The herbal medicine was a decoction of plant material, including Rehmannia glutinosa, Talcum, Glycyrrhiza glabra, Atractylodes chinensis, Plantago asiatica L., Gentiana scabra Bunge, Akebia quinata Decaisne, Raphanus

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**Table 1** Patient characteristics, laboratory findings and adverse maternal, fetal, and neonatal outcomes.

<table>
<thead>
<tr>
<th>Patient characteristics</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)/gravidity</td>
<td>27/primipara</td>
<td>32/multipara</td>
<td>26/primipara</td>
</tr>
<tr>
<td>History of allergic disease (including AD)</td>
<td>None</td>
<td>None</td>
<td>AD</td>
</tr>
<tr>
<td>Laboratory findings (first day of admission/discharge day/delivery day)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AST (IU/L)</td>
<td>16/16/19</td>
<td>17/—/23</td>
<td>46/—/13</td>
</tr>
<tr>
<td>ALT (IU/L)</td>
<td>12/13/11</td>
<td>11/—/12</td>
<td>30/—/10</td>
</tr>
<tr>
<td>BUN (mg/dl)</td>
<td>8/5/8</td>
<td>7/—/10</td>
<td>8/—/8.5</td>
</tr>
<tr>
<td>Creatinine (mg/dl)</td>
<td>0.6/0.6/0.6</td>
<td>0.6/—/0.7</td>
<td>0.5/—/0.6</td>
</tr>
<tr>
<td>Adverse maternal, fetal, and neonatal outcomes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy complications</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Fetal or neonatal death</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Gestational age</td>
<td>40—5 weeks</td>
<td>40–2 weeks</td>
<td>38+3 weeks</td>
</tr>
<tr>
<td>Birth weight (g)</td>
<td>3880</td>
<td>3980</td>
<td>3010</td>
</tr>
<tr>
<td>Apgar score (1/5 min)</td>
<td>8/10</td>
<td>8/10</td>
<td>8/9</td>
</tr>
<tr>
<td>Congenital abnormalities</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Normal range:

a 0—40.

b 0—40.

c 6—22.

d 0.5—0.9.

e Antepartum hemorrhage, hypertension (≥140/90 mmHg), pre-eclampsia, proteinuria (≥0.3 g/l from 20 weeks gestation).

f Fetal death includes spontaneous abortion and stillbirth (death of a fetus of at least 500g weight or before 20 weeks gestation); neonatal death refers to death within 28 days of live birth.

g Pre-term birth: before 34 weeks gestation; post-term birth: after 42 weeks gestation.

h Average birth weight: more than 2500 g and less than 4000 g.

i Apgar score: 0–3, critically low; 4–6, fairly low; 7–10; normal.

j Congenital malformations: abnormality of prenatal origin, including structural, genetic and/or chromosomal abnormalities and biochemical defects.
sativus, Adenophora triphylla, Smilax china L., Scutellaria baicalensis Georgi, and Angelica gigas. We decocted 0–20 g of each plant material with purified water as a daily dose according to patient progress. This daily dose was administered three times a day after each meal.

We also used a decoction of plant material for the herbal wet dressings, including Phellodendron amurense, Sophora flavescens, Lirioppe platyphylla, Perilla frutescens var. acuta, and Schizonepeta tenuifolia Briquet. Four or five layers of sterilized gauze were hydrated sufficiently with the decoction and were applied immediately to the AD lesions for 15 min. Herbal wet dressings were applied once or twice per day based on symptom severity.

Assessment

To assess the efficacy of the treatments, the severity of AD was evaluated using the SCORAD (Severity Scoring Atopic Dermatitis) system.³ To assess the safety of the treatments, we performed liver and renal function tests including AST (GOT), ALT (GPT), BUN (Blood Urea Nitrogen) and creatinine, made observations regarding clinical side effects on the first day of admission, discharge day (only for patient 1), and on the day of delivery. We also monitored for any adverse maternal, fetal, or neonatal outcome including pregnancy complications, fetal or neonatal death, gestational age, birth weight, Apgar (Appearance, Pulse, Grimace, Activity, and Respiration) score and incidence of congenital malformations.

Results

Severity of atopic dermatitis

Three patients’ total SCORAD score were decreased after treatment (Fig. 1). Patient 3’s total SCORAD score was initially 33.5, increasing to 46.5 as symptoms worsened during outpatient treatment at week 6. After inpatient treatment, the score decreased from 42 to 25.4. After discharge, the score decreased continuously and was 19 at the final treatment visit (Fig. 1).

Laboratory findings

Normal liver and renal function values were confirmed before treatment and after treatment for all patients except patient 3. Patient 3’s AST was elevated 2 months before pregnancy and was monitored by her doctor without treatment. Her AST had decreased to within normal range on delivery day (Table 1).

Clinical evaluation of side effects

None of the patients showed any symptoms of nausea, vomiting, dizziness, fatigue, dyspepsia, diarrhea, or edema.

Adverse maternal, fetal, and neonatal outcomes

There were no adverse effects on maternal, fetal, or neonatal health (Table 1).

Discussion

In conventional Western medicine, the mechanism for the deterioration of AD symptoms during pregnancy is known to be hormonal changes related to immune-modulation.¹ Meanwhile, in KM, the exacerbation of AD is explained to be due to a deficiency in yin and blood which are rerouted to nourish the fetus. The herbs prescribed in this study are known to be effective for replenishing yin and blood in addition to clearing heat, draining dampness and reducing erythema, pruritus, and exudates in AD.⁹ Two experimental studies reported that R. glutinosa and Scutellariae radix extracts suppressed the expression of cytokines and chemokines in an AD mice model.¹⁰,¹¹ Another study showed that flavonoids included in herbs such as an extract of Gentiana scabra Bunge roots may be helpful to treat chronic AD.¹² Also plant materials used in herbal wet dressing have anti-inflammatory and anti-microbial effects.¹³,¹⁴ The prevalence of herbal medicine use during pregnancy is between 7% and 55%.⁶ Several studies have provided some evidence for the safety of herbal medicine to treat various symptoms during pregnancy.⁶,¹⁵,¹⁶ These findings suggest that herbal medicine may be beneficial for treating AD during pregnancy.

The efficacy of acupuncture for AD has been also demonstrated in previous studies.¹⁷,¹⁸ It has been reported that acupuncture treatment at a ‘verum-point’ such as LI11 and SP10 might be useful for reduction of type I hypersensitivity response in AD.¹⁷ This research is helpful to suppose a mechanism of acupuncture in this study. A review study indicated that acupuncture may assist with the management of some complaints during pregnancy such as nausea, back pain, and pain in labor.¹⁹ These findings suggest that acupuncture treatment may be helpful to improve AD symptoms during pregnancy.

We recognize that there are limitations to our study. This study is a case series of only three patients. We used complex formulations of herbs, and treatment therapy combined acupuncture, herbal medicine, and herbal wet dressings. Therefore, it is difficult to determine which therapy contributed most to the clinical improvements. Individualized treatment is a major characteristic of KM. Therefore, in most cases, the constitution of the prescribed herbal medicine depends on the individual condition being treated. This is the reason we changed the dose of each plant material during the treatment period.

In spite of these limitations, this study is meaningful as the first case series of AD in pregnant women successfully treated with KM therapy including herbal medicine, acupuncture, and herbal wet dressings. Our findings suggest that it would be worthwhile to conduct further studies on the safety and efficacy of KM for AD during pregnancy.

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**Figure 1** Total SCORAD score and picture of patient’s lesion. *a*The first day of admission; *b*discharge day.
Conflicts of interest

No conflict of interest declared.

Acknowledgement

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References