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• Research Article

Therapeutic effect of acupuncture point injection with placental extract in knee osteoarthritis

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ABSTRACT

OBJECTIVE: This study evaluated the effectiveness of acupuncture point injection (API) with placental extract on pain reduction and joint function in patients with knee osteoarthritis (OA).

METHODS: Fifty-two patients with knee OA, with an average age of 64, and having a symptom duration of more than 3 months were studied in this report. Placental extract was injected weekly into acupuncture point ST35, BL23, BL24 and BL25 for 5 weeks; 8 mL of placental extract into ST35 on the affected side, and 1 mL of placental extract to BL23, BL24 and BL25 bilaterally.

RESULTS: After a five-week treatment of API with placental extract, pain was substantially decreased in patients of all Kellgren-Lawrence (KL) grades. Improvement of knee joint swelling was also apparent. Decrease of pain and joint swelling improved daily working productive time among patients of all KL grades.

CONCLUSION: Study results imply that API with placental extract is a potentially useful therapy to control pain and maintain joint functions in knee OA patients.

Keywords: osteoarthritis, knee; acupuncture point injection; placental extracts; pain; swelling; productive time

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1 Introduction

Osteoarthritis (OA) frequently affects the knee and causes joint pain, tenderness, limitation of movement and reduction of quality of life, resulting in a social and economic burden. Currently, several therapeutic approaches are used, including rest, medication, noninvasive interventions, nonsurgical invasive interventions and surgical interventions.[1] If pain persists following medication and other noninvasive interventions, intraarticular injections of a number of drugs may be administered prior to surgical intervention.

Glucocorticoids are the most commonly used intraarticular agents, which reduce pain and improve function.[2] However, there are some complications induced by locally injected glucocorticoids which can restrict the long-term use in patients: osteoporosis,[3,4] postmenopausal bleeding,[5] disturbance of the menstrual

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pattern,[6] local skin depigmentation,[7] hypertension[8] and hyperglycemia.[9]

Due to unwanted adverse effects of glucocorticoid treatment, a growing number of adults with OA employs complementary and alternative treatments in an effort to manage OA-related symptoms. This trend may have come from a belief that complementary treatments are free from adverse effects. Growing evidence suggests that acupuncture is a safe intervention for patients with OA.[10,11] One meta-analysis of 16 trials, including a total of 3 500 participants, revealed that acupuncture produces statistically significant but not clinically meaningful effects on pain and physical function.[11]

To attain a better therapeutic effect, many clinicians in East Asia have recently attempted acupuncture point injection (API) with pharmacological medication or purified herbal medicine. Previously we reported that APIs with placental extract successfully relieved pain and restored the articular movement of the affected joints in patients with complex regional pain syndrome.[12,13] Moreover, the APIs with placental extract were shown to be safe for long-term uses.[12,13]

With the expansion of clinical applications of APIs, there is a growing understanding of the therapeutic effects of APIs on various diseases. In our case study, we explored whether APIs with placental extract decrease pain and ameliorate functions of joints in knee OA patients.

2 Materials and methods

2.1 Subjects

This study comprises a retrospective chart review of knee OA patients who presented at Cho Orthopaedic Clinic between March 2014 and September 2014. Patients with knee OA in the age range of 46–88 years, with symptom duration of more than 3 months, were included in our study. Exclusion criteria included history or presence of malignant disorders, infection or active wound in the knee area, recent history of severe trauma to the knee, history of partial or total knee replacement surgery, knee intra-articular injections of glucocorticoids during the past 6 months and the use of non-steroidal anti-inflammatory drugs for more than 4 d before the injection. The average age of patients was 64 (interquartile range (IQR) of 14), with 12 males and 40 females (Table 1).

The Kellgren-Lawrence (KL) grade of the patients was diagnosed by X-ray. Using the KL criteria, patients were classified from grade 0 to grade 4: grade 0 for normal with absence of OA, grade 1 for doubtful osteophyte, grade 2 for minimal-definite osteophyte, grade 3 for definite joint space narrowing and grade 4 for bone-on-bone contact.[14,15]

Our study was conducted in accordance with the principles of the *Declaration of Helsinki*. Written informed consent was obtained from each patient.

2.2 Preparation of placental extract

Human placental extract, Laennec, obtained under the regulations of the Korean Food and Drug Administration, was purchased from Green Cross Ltd. (Yongin, Korea). Human placentas, collected upon full-term delivery, were tested for human immunodeficiency virus and hepatitis B and C viruses. They were cut into pieces, defatted with acetone and extracted with water through pepsin and hydrochloric acid-catalyzed hydrolysis. The resulting placental extract was tested to be germ-free, anti-histamine and endotoxin-free under the regulation of Korean Food and Drug Administration. The final placental extract product was sterilized, packaged at 2 mL/ampule and approved for human injection. Insoluble macromolecules, such as polysaccharide, polynucleotide, etc., were excluded during the manufacturing processes.

2.3 Therapeutic interventions

Placental extract was injected weekly into acupuncture points ST35, BL23, BL24 and BL25 (Figure 1) for five weeks. Aliquots of placental extract (8 mL) were injected into acupuncture point ST35 of the affected side by using syringes with 23-gauge needles. In addition, a 1 mL aliquot

Table 1 Baseline characteristics of the patients with different KL grades

Item	KL 0 (n = 7)	KL 1 (n = 17)	KL 2 (n = 12)	KL 3 (n = 12)	KL 4 (n = 4)
Gender (n,%)					
Male	1 (14%)	4 (24%)	6 (50%)	1 (8%)	0 (0%)
Female	6 (86%)	13 (76%)	6 (50%)	11 (92%)	4 (100%)
Age (years)	54 (46–62)	61 (46–85)	66 (53–71)	72 (60–88)	77 (72–81)
< 65 years (n,%)	7 (100%)	13 (76%)	4 (33%)	2 (17%)	0 (0%)
≥ 65 years (n,%)	0 (0%)	4 (24%)	8 (67%)	10 (83%)	4 (100%)
Diagnosis radiographically confirmed (n,%)	7 (100%)	17 (100%)	12 (100%)	12 (100%)	4 (100%)

KL: Kellgren-Lawrence.