

Case Report

Efficacy of acupuncture intervention for the treatment of Gouty Arthritis: a Case Report

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ABSTRACT

Background: Gout is a disorder of purine metabolism in which a high serum uric acid is found and deposit of urate crystals within joints causing exquisite pain and tenderness. **Method:** A 47 years male was pre-diagnosed with gouty arthritis for the past 6 months having severe bilateral pain on both big toes associated with swelling and difficulty in walking. This case study was done to investigate the effectiveness of acupuncture for managing pain and to down-regulate the uric acid level in a patient with gouty arthritis. **Result:** Baseline and post data were assessed on day 0 and day 11 of intervention. After 11 days of intervention patient's pain intensity and serum uric acid level were reduced. **Conclusion:** This result has shown that acupuncture may be effective in the management of gouty arthritis.

Keywords: Acupuncture diagnosis, Gouty arthritis, Pain, uric acid

Gout is the most common inflammatory disease caused by the deposition of monosodium urate crystals in joints and tissues due to the defective metabolism of uric acid that leads to arthritis. Gout increases in prevalence with the increase in age, males have a fourfold higher prevalence than females [1]. An elevated serum urate level, together with local factors, can result in the deposition of urate crystals into the joints. Once crystals are deposited into a joint, they can be released into the joint space and initiate an inflammatory cascade causing acute gouty arthritis. These acute flares resolve, but the crystals remain in the joint [2].

The pathogenesis of Gouty arthritis is complex. It has been found that environment; genetics, immunity, diet, internal environment, and trauma are involved in pathogenesis [3]. Typical acute gouty arthritis is more common in middle-aged, older men, and obese postmenopausal women. It usually manifests as redness, brightness, and significant tenderness in the single affected joints, especially when the first metatarsophalangeal joint is involved [4].

Acupuncture is based on the theory of meridians, which stimulates characteristic acupuncture points to clear meridians and smooth the body's qi and blood. According to acupuncture concepts, the etiology of Gouty arthritis is summarized as abnormal cold wind, dampness, and phlegm stagnation. Among these, damp heat accumulation is regarded as the key factor of GA [5].

According to the theory of TCM, gout is associated with congenital deficiency and dysfunction of the spleen and kidney. Holism holds that the spleen is the root of after birth and the source of qi and blood, which transports the essence of water and grain to nourish the whole body. The kidney is often considered the congenital foundation, which can store substances and regulate water metabolism [6].

The treatment of GA aims to invigorate the spleen, balance the kidney qi, dissipate dampness, resolve blood stasis, clear away heat, remove toxic substances, soothe the Liver, regulate dredging collaterals, and also relieve pain [7].

Case Description: A 47 years old male patient came to our outpatient department with a chief complaint of pain on both big toes associated with swelling and difficulty in walking for the past 6 months.

Symptoms: The pain increased while walking, and climbing stairs and he was unable to move his big toes. The patient was apparently alright when he gradually developed body aches and multiple joint pains.

Sign: On examination, pain (++), swelling (+), and tenderness (+) were present on both first metatarsophalangeal joints. He was pre-diagnosed with gouty arthritis.

Objective assessment: The details of the intervention procedure were explained and informed consent was obtained from the patient before starting the intervention. The assessments VAS score and serum uric acid level were assessed before and after the 11th day of the intervention. This case report aimed to evaluate the effectiveness of acupuncture at specific points on gouty arthritis. The result of the study showed that acupuncture points at SP -3, ST- 44, K -3, LIV-3, GB-34, SP -6, and DU - 20 reduces VAS score from 8 to 3 and serum uric acid level from 12.1mg /dl to 8.71 mg /dl after 11 days of intervention.

Table-1 Assessments

Parameter	Pre-Test	Post-Test
Serum uric acid	12.1mg/dl	8.71mg/dl
Vas score	8	3

Intervention: The patient underwent acupuncture treatment at spleen(SP-6), stomach (ST-44,) liver(LIV-3),gall bladder(GB-34), spleen (SP-3),kidney(K-3)and governing vessel(DU-20)for 11days in supine position for 25 minutes duration without any interruption. Stainless sterile filiform needles (0.25×25mm) were used for intervention.

DISCUSSION

Gouty arthritis is a metabolic disease caused by a disorder of purine metabolism which leads to elevated uric acid levels and causes a high level of disability, morbidity, and high healthcare utilization due to intermittent attacks, chronic inflammation, and joint damage. Gouty arthritis is one of the most common indications for which patients seek complementary and alternative medicine treatment [8]. The acupuncture point GB-34 when inserted stimulates the nerve fibers in skin and muscle by setting off action potentials locally and producing an 'axon

reflex'. This in turn stimulates the release of several neuropeptides and endogenous opioids to cause vasodilation and activation of c- Fos within the central nervous system leading to increased local blood flow in the local area. The stimulated action potentials also travel through the nerve directly to its particular segment in the spinal cord and depress the activity of the dorsal horn, thus reducing its response to painful stimuli. [9] [10] SP-3 and SP-6. The spleen meridian can remarkably decrease the blood uric acid level in patients with primary hyperuricemia; during acupuncture, both the 24-hour urine volume and the FEUA increases. The underlying mechanism might be that acupuncture increases the urine volume and urine pH value, inhibiting the enzyme level of URAT-1, both of which might increase the excretion of uric acid [11] [12]. LIV-3 and K-3 are known as source points which is usually applied to promote circulation and blood throughout the body in the treatment of pain [13]. ST-36 and ST-44 act as anti-inflammatory through down-regulation of interleukin and tumor necrosis factor[14]. From the perspective of TCM, the main function of the spleen is to regulate the transportation and distribution of nutrients and body fluids throughout the dysfunction of the spleen. Often results in the imbalance of nutrients and humoral metabolic disorders, spleen meridian in acupuncture can regulate the occurrence, growth, transportation, enhancement, and aggregation of the Qi, which will favourably adjust the transportation and distribution of nutrients and body fluids in the human body this, may explain the efficacy of acupuncture in lowering blood uric acid [15]. Therefore, these points which an anti-inflammatory, analgesic, and lowering uric acid levels might be useful in the management of gouty arthritis.

CONCLUSION

Acupuncture could be used to reduce pain intensity and improvement of quality of life in patients with gouty arthritis

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