

Treatment of Human Immunodeficiency Virus (HIV) Associated Neuropathy with Acupuncture and Moxibustion: A Case Report

Joyce K Anastasi* PhD

Michelle Chang MS

Special Studies in Symptom Management, New York University, New York, NY, USA

ABSTRACT

Peripheral neuropathy is a common neurological complication of the human immunodeficiency virus (HIV) infection and is often associated with the use of antiretroviral medications. The severe and debilitating pain can significantly impair quality of life. Traditional Chinese medicine (TCM) offers treatment modalities to manage distressing symptoms in addition to western interventions that often do not provide total relief and are associated with side effects. This case report illustrates a six-week course of acupuncture and moxibustion for a 49-year-old HIV-positive female. The outcome suggests that TCM may provide significant improvement and may be a valuable option for the effective management of HIV-related symptoms.

KEYWORDS Peripheral neuropathy, HIV, acupuncture, moxibustion.

Introduction

Peripheral neuropathy (PN) is a common neurological complication experienced by people living with the human immunodeficiency virus (HIV). Along with the success of highly active antiretroviral therapy (HAART) in reducing morbidity and mortality, individuals with HIV still often develop neurological complications and the most frequent type is distal sensory peripheral neuropathy (DSP) which occurs in approximately one third of HIV patients.^{1,2} Post HAART, DSP continues to be prevalent with associated risk factors including age, mitochondrial polymorphisms, antiretroviral medications and co-morbidities, such as diabetes and nutritional deficiencies.^{3,4} The exact pathology of DSP in HIV remains unknown but proposed mechanisms include cytokine dysregulation, viral protein produced

neurotoxicity and mitochondrial dysfunction associated with antiretroviral agents.^{3,5,6} DSP presents with burning (dysaesthesia), numbness, and pins and needles (paraesthesia) in the distal extremities, predominantly in the toes and soles of the feet.⁷ Physical examination findings may reveal decreased or absent ankle reflexes, loss of sensory perception to light touch, temperature, and vibration and occasional intrinsic muscle weakness.^{2,8}

If left untreated, many patients may experience progressive gait difficulties and limitations in everyday activities, such as bathing or dressing. The debilitating pain can interfere with housework, work outside the home, and social activities resulting in emotional stress and significantly impacting on

* Correspondent author; e-mail: ja2188@nyu.edu

quality of life. Interventions to manage DSP associated with HIV have been adopted from strategies of diabetic PN as the symptoms may be similar.³ Current treatment is primarily aimed at symptomatic management of pain with pharmacologic options, such as non-steroidal anti-inflammatory drugs (NSAIDs), tricyclic antidepressants, opioids, anticonvulsants and topical analgesics. However, available treatment options provide limited relief and are often accompanied by adverse side effects, such as sedation, dizziness and peripheral oedema.⁹

This case reports the use of acupuncture and moxibustion for 12 sessions over six weeks with twice a week treatments.

Case History

A 49-year-old female diagnosed with HIV since 1991 presented with various pain symptoms, including burning and cold sensation, numbness and pins and needles on her lower extremities in early August 2006. The patient was referred by her primary care physician. Her primary complaint was burning, sharp pain in her feet and toes bilaterally. She also felt coldness and numbness in her lower legs. The symptoms would last for two to three hours and sometimes endure for the whole day. Her neuropathy symptoms began in January 2006 and she was started on gabapentin (an anticonvulsant often prescribed for neuropathic pain) with little relief. Using a standardised scale of severity from 0 to 6 (0 = no discomfort at all and 6 = very severe discomfort),¹⁰ her baseline symptoms of pins and needles were rated as severe (5/6), pain and numbness were rated as very severe (6/6), as was her overall severity of symptoms (6/6). In addition to the scale of severity, the patient was given an anterior and posterior diagram with outlined dermatomes to indicate clearly the location of her pain. She reported being quite limited in climbing stairs, walking several blocks, and even bathing herself.

On initial physical examination, there was slight oedema on both ankles and her gait was antalgic, requiring the use of a cane. Utilising a standardised practice and traditional instruments of neurological sensory testing (128 Hz tuning fork [vibratory sensation], tooth pick [sharp sensation], cotton ball [soft sensation], hot and ice cold test tubes [temperature sensation]),¹¹ the patient was assessed pre-treatment as having an absence of sensation to pin prick and light touch in both feet and legs, and temperature (both hot and cold) on both thighs. Pressure sensation (measured with a 5.07/10-g Semmes Weinstein monofilament test) was absent bilaterally and her plantar reflexes were absent. Her muscle strength was normal but slightly reduced in ankle dorsiflexion and ankle plantar flexion. Her vibratory and position sense were intact. Her tongue was pink, long, pointed with a thick white coat and bare on the sides. Her pulse rate was 66 beats per minute and had a thin, deep quality.

The patient did not have a history of diabetes, nutritional deficiency or any acute medical condition. She has a past history of high blood pressure and currently manages her asthma with albuterol (bronchodilator). She was post menopausal with no climacteric symptoms and her last menses was 10 years ago. Her most recent HIV viral load was below 50 copies/ml and CD4+ lymphocyte count was 430 cells/mm³ while on a stable regimen of antiretroviral therapy of ritonavir (protease inhibitor) and atazanavir (protease inhibitor). To characterise the progression of her HIV disease, a low viral load is usually between 40 and 500 copies/ml and normal adult CD4 count reference ranges are generally within 500 to 1500 cells/mm³. She took no substances other than her prescribed medications. If the patient did require pain medication or had changes in other medications, she was instructed to inform the practitioner.

At the initial session, the patient reported sleep problems. She had extreme difficulty falling asleep and was waking up several times during the night. She noted she woke up too early and felt minimally rested upon awakening. The patient also reported low energy and often felt sleepiness during the day. She stated she felt tired all the time. As for her digestion, she indicated little appetite, heartburn and abdominal pain relieved by a bowel movement. She was prone to worrying, having trouble with her memory and difficulty concentrating. She also reported extreme impatience, irritability, and at times hostility. The patient also noted moderate backache pain, decreased desire to talk or move, and having none to little sexual desire. She often felt depressed or sad, overwhelmed and had difficulty making decisions.

TCM DIAGNOSIS

Liver and kidney yin deficiency; spleen and kidney yang deficiency; spleen dampness.

BIOMEDICAL DIAGNOSIS

Distal sensory peripheral neuropathy possibly due to HIV itself or medication.

TCM TREATMENT PRINCIPLE

Tonify blood/yin and yang qi; move qi and blood; resolve dampness.

TREATMENT

The patient lay supine and the following acupuncture points were selected: LI11 *Quchi*, SP10 *Xuehai*, GB34 *Yanglingquan*, ST36 *Zusanli*, SP6 *Sanyinjiao*, KI3 *Taixi*. The needles were inserted to a depth where *deqi* sensation was elicited and the needles were retained for 20 minutes with tonifying technique. Then the patient lay prone and LR8 *Ququan*, GB39 *Xuanzhong* were needled and retained for 20 minutes. Simultaneously, indirect pole moxibustion was applied for two minutes to each of the following points: BL17 *Geshu*, BL18 *Ganshu*,

BL20 *Pishu*, KI1 *Yongquan*. All acupuncture procedures were performed with Seirin J-type, No. 2 (0.18) x 30 mm, sterile disposable needles. Acupuncture points were stimulated with lighted pure moxa sticks using the indirect technique in a clockwise circular motion to provide gentle warming until the skin became slightly red.

OUTCOME

Following a schedule of acupuncture and moxibustion twice a week for six weeks, the patient kept a weekly symptom diary during her course of treatment recording her pain location, intensity and duration, as well as other general symptoms. At the patient's sixth session, she reported reduction of pain and pins and needles to moderately severe (4/6), numbness declined (5/6), and her overall severity of symptoms lessened to moderate (3/6). At the end of six weeks of treatment, the patient's gait was normal and she was not using her cane. Post-treatment sensory assessment was conducted and confirmed that she had improved sensation which was now intact to pinprick, temperature, and light touch in both legs and feet. Pressure sensation also improved and was present bilaterally. The patient reported her pain score had mitigated to moderately severe (4/6), and her overall severity of symptoms had alleviated and were mild (2/6). In a follow-up session two months later, the patient reported her pain, pins and needles and numbness score all were reduced and sustained to minor (1/6), as was her overall severity of symptoms (1/6).

Aside from the neuropathic symptoms, the patient also reported that she had been sleeping better and having less difficulty falling asleep. However, she was still waking up during the night. She felt less nervousness and anxiety and was not as fatigued all the time. She also reported her appetite increased slightly.

Discussion

This case report presents several concomitant symptoms of intense burning pain, cold, numbness and pins and needles with an underlying chronic illness managed with antiretroviral agents. The foundation of treatment in TCM is the principle of *ben* and *biao*. However, in practice, practitioners see patients with several roots and branches and may need to prioritise the differential patterns. Patients with longstanding conditions often present with numerous deficiencies in all the organs and the differential patterns may coincide, blend or overlay one another. In this case, the patient had been living with HIV for more than 15 years. Taking into consideration the long term use of antiretrovirals and the resulting damage to her spleen and stomach affecting the production of blood and qi, the treatment emphasised the multiple underlying deficiencies of the liver, spleen and kidney. The primary diagnosis of liver and kidney yin deficiency was determined by her presenting

neuropathic symptoms of heat sensation in the toes and soles of her feet, along with the predominant supporting symptoms of insomnia, nervousness, impatient disposition, thin pulse and tongue coat missing on the sides. The secondary diagnosis of kidney and spleen yang deficiency was made by the additional symptoms of coldness and numbness in her lower legs, supported by her oedema, lack of appetite, fatigue after eating, backache and low sexual desire. Her thick white tongue coat also indicated dampness.

To address the patient's neuropathic pain symptoms, a layered approach was implemented by nourishing the blood (ST36, SP6, LR8), kidney yin, yang and marrow (GB39, KI3). The emphasis was on tonifying blood points to build the yin. Then, enriching the yin builds the yang similar to adding kindling to generate the fire. Also, points were utilised to move the blood and qi (SP10, GB34) and clear heat (LI11) due to yin deficiency. Yongping and Stefanovic also describe in their case study of PN in HIV/AIDS, the principle of tonifying blood, qi and yin while moving qi and blood.¹² Over the course of treatment, the patient's general symptoms, such as sleep patterns, mood, appetite and fatigue also showed some improvement.

Moxibustion is typically recommended for cold imbalances such as cold hands and feet and avoided in conditions of heat, such as inflammation. In this case, recognising that the burning, heat sensation in the patient's feet and toes was deficient in origin informed the use of moxa on KI1 and was well tolerated by the patient. The use of moxa activates the blood, warms the yang and unblocks the meridians. Traditionally, acupuncture has been coupled with moxibustion but there have been few clinical studies of the application of moxibustion demonstrating its effectiveness. This case utilised moxibustion on blood related points (BL17, BL18, BL20) and suggests further research into its application and possibly the use of direct moxibustion. There is a paucity of information in the English literature on moxibustion, particularly on its traditional usage with acupuncture. Clinical cases illustrating the combination of acupuncture and moxibustion can assist in further understanding their synergistic therapeutic benefits.

Furthermore, peripheral neuropathy is also commonly associated with diabetes, alcoholism and chemotherapy agents. One study shows acupuncture may be effective in treating diabetic PN and a case series suggests its use in chemotherapy induced PN.^{13,14} The aetiologies may be different but this case study adds to the need for further research as it may hold wider application and promise.

Conclusion

In summary, the patient experienced significant improvement and a sustained response to TCM in managing one of the most distressing symptoms of HIV that western medicine

has not been able to fully address. By mitigating the intense burning, numbness and foot pain, the patient experienced more mobility, less frustration and enhanced simple daily activities, such as bathing and sleeping. As individuals with HIV are living longer, TCM may provide valuable and effective nondrug approaches to reduce HIV symptoms and/or HAART side effects and to improve quality of life.

Clinical Commentary

Peripheral neuropathy is a frequent complication experienced by HIV patients. It is associated with HIV infection and/or the toxic side effects of medications. This case report will be of particular interest to practitioners who see HIV patients with neuropathic pain. The acupuncture and moxibustion treatment described in this report was successful in reducing the severity of lower limb neuropathic pain and numbness associated with HIV and may provide a non-pharmacological approach to managing this distressing symptom and improving the quality of daily life for patients.

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