

Effectiveness of electro-acupuncture for the treatment of long covid menstrual irregularities

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Abstract

Objective: This article is aimed at demonstrating the effectiveness of electro-acupuncture in treating post-COVID-19 menstrual irregularities in 40 cases in eastern Canada.

Method: 40 patients suffering from irregular menstruation after a Covid-19 infection were divided into 3 groups according to their main symptoms and were treated with electro-acupuncture using the acupoints Tianshu (ST25), Zigong (EX-CA1), Sanyinjiao (SP6) and Xuehai (SP10).

Results: After treatment once a week over a course of 12 treatments, of the 40 patients, 33 cases were clinically cured, and 7 cases were ineffective. The rate of overall effectiveness was 82.5%.

Conclusion: Electro-acupuncture regulated the menstrual cycle; restored the healthy functioning of the liver, kidneys and spleen; and the patient's physical condition and quality of life improved.

Keywords: Long COVID, Irregular Menstruation, Menstrual Cycle, Electroacupuncture, TCM

Introduction

Since the outbreak of COVID-19, the very high prevalence of the novel coronavirus COVID-19 and its variants has meant that many women are at risk of suffering from menstrual irregularities following an infection. Recently, a retrospective, cross-sectional study (N=237) shows that among 237 patients with confirmed COVID-19, of which 177 patients had menstrual records, 45 (25%) patients presented with changes in menstrual volume, and 50 (28%) patients had changes in their menstrual cycle, mainly a decrease in volume 24 (20%) and a prolonged cycle 23 (19%). In other words, one-fifth of the patients exhibited a decrease in menstrual volume or a prolongation of their cycle, which confirmed the relationship between COVID-19 infection and menstrual disturbances [1]. Another cross-sectional survey-based study (N=483) revealed that a COVID-19 infection affected the menstrual cycles in women aged between 21 and 42 years old [2] in the following ways: some women experienced unpredictable periods (the dates and length change each month), the amount of blood shed (from light to heavy or vice versa), the number of days of bleeding vary significantly, there is random spotting throughout the month, and premenstrual syndrome (PMS) worsened [3].

By definition, a normal menstrual cycle occurs every 21 to 35 days lasting two to seven days for most women, and the average menstrual cycle is 28 days [4] whereas an irregular menstrual cycle can be defined as follows. The absence of menstruation for one or more menstrual periods is defined as amenorrhea [4]. A menstrual cycle is considered early if it is advanced by 7 days and delayed if it is prolonged by 7 days [5]. Menstrual irregularities can be caused by an imbalance of hormones, particularly estrogen and progesterone. Ongoing irregular menstruation can make it difficult to conceive and the negative effects may influence the normal life and work of patients [6]. To remedy this, acupuncture has been widely used in the treatment of gynecological diseases for thousand years in China. A Randomized Controlled Trial (RCT) study evaluated the efficacy and safety of various types of acupuncture techniques in the treatment of irregular menstruation [6] and clinical studies have demonstrated the efficacy and safety of acupuncture in improving menstrual frequency [7]. Further studies show that acupuncture helps regulate reproductive issues including irregular menstruation and hormonal imbalances. Acupuncture can reduce stress, improve blood flow in the pelvic area, and thicken the endometrium, all of which improve the menstrual cycle [8, 9]. Acupuncture promotes the recovery of the menstrual cycle

through the selection of certain acupoints and their manipulation. Artificial-cycle therapy with acupuncture is remarkably successful in regulating menstrual cycles.

Modern studies have confirmed that stimulating relevant acupoints can regulate the function of the hypothalamic pituitary adrenal axis and promote the development and secretion of follicles to improve the level of hormones [10-12]. Acupuncture therapy is also effective in relieving the clinical symptoms of PMS because it regulates the endocrine hormones [13].

General Information

Data was collected from 40 female patients whose main reason for seeking acupuncture was changes in their menstrual cycle that occurred after a COVID-19 infection in Montreal at Acuenergie Acupuncture Clinic from June 2020 to May 2022. Among the 40 cases, there are 12 cases of early menstruation, 15 cases of delayed menstruation and 13 cases of amenorrhea. The age of the patients ranged between 22 and 45, and the breakdown of case distribution according to the age range was as such: age 22 to 25, 5 cases; age 26 to 30, 8 cases; age 31 to 35, 11 cases; age 36-40, 6 cases; age 41-45, 10 cases. The average age was (33.9 ± 6.7) years.

The most common clinical symptoms of menstrual changes are summarized as follows: irregular menstruation (early or delayed), abdominal pain or cramps, heavy bleeding or scant blood flow, cycles that are too short or too long, unusual clotting of the blood, headaches, dizziness, tiredness, poor memory, lower back pain, irritability, tender breasts, night sweats, bloating, cravings for sugar, anxiety, depression, anemia, emotional distress, sadness or crying, weight gained, and hair loss.

Syndrome Differentiation in TCM

The 40 patients with changes in their menstrual cycle or length of menses after a Covid-19 infection were divided into 3 patterns based on whether their main symptoms were related to liver qi stagnation, qi and blood deficiency, or spleen and kidney yang deficiency.

Liver qi Stagnation

Main symptoms: Irregular menstruation (early or delayed), heavy or light menstrual volume, dark red blood with clots, the blood flow is not smoothy, accompanied by chest, epigastrium or abdomen distension, premenstrual tension, anger, sighing, anxiety, depression, mood swings, moodiness, melancholy, hypochondria, a persistent feeling of a lump in the throat, premenstrual breast distension, dysmenorrhea, a red tongue with a thin coating, and a stringy pulse.

Treatment strategy: soothe the liver, invigorate the liver qi.

Qi and Blood Deficiency

Main symptoms: Irregular menstruation (early or delayed), heavy or light menstrual volume, light red blood with no clots, increased or decreased menstrual volume, accompanied by palpitations, fatigue, dizziness, anemia, insomnia, pale or sallow complexion,

poor appetite, loose stools, weak voice, poor memory, general weakness, shortness of breath, numbness in the skin and limbs, a pale tongue with a white coating, a thin and deep pulse.

Treatment strategy: nourish qi and blood; invigorate blood and qi circulation, strengthen the spleen and kidney qi.

Spleen and Kidney Yang Deficiency

Main symptoms: Irregular menstruation (early or delayed), heavy menstrual flow, light red blood, accompanied by fatigue, tinnitus, dizziness, weak legs, gassiness, bloating, abdominal fullness, lack of appetite, lower back pain, frequent nocturnal urination, cold limbs, sensitive to cold, pale or sallow complexion, a puffy, pale and wet tongue with a slippery coating and tooth marks on the sides, a deep, weak and slow pulse.

Treatment strategy: Tonify and warm the kidney and spleen yang, invigorate the spleen and kidney qi, nourish qi and blood.

Treatment Methods

Acupoints

Group 1 Electro-Acupoints: Tianshu (ST25), Zigong (EX-CA1), Sanyinjiao (SP6), Xuehai (SP10).

Group 2 Auricular points: Gomadotropin, Endocrine, Uterus, Kidney, Liver, Pituitary, Ovary.

Group 3 Body Acupoints: Guanyuan (REN4), Zusanli (ST36), Neiguan (PC6), Gongsun (SP4), Hegu (LI4), Taichong (LIV3).

Liver qi stagnation: Groups 1, 2, 3, and Ganshu (BL18), Qimen (LIV14)

Qi and blood deficiency: Groups 1, 2, 3, and Pishu (BL20), Geshu (BL17), Qihai (REN6)

Spleen and kidney yang deficiency: Groups 1, 2, 3, and Diji (SP8), Taixi (KID3)

Acupuncture Manipulation

After disinfecting all points with a cotton ball dipped in alcohol, the order of inserting the needles is from the lower limbs to the abdomen, starting on the left side of the body and finishing on the right side. Disposable sterile needles, size 0.25x25 mm, are used and are inserted perpendicularly in all points to a depth of 10 to 15 mm. Acupuncture points are needled bilaterally and a TDP lamp is used on the belly during the session.

An electro-acupuncture stimulator (model KWD-808I, brand Great Wall) is connected ipsilateral at four acupoints using two groups (Tianshu (ST25) and Zigong (EX-CA1); Sanyinjiao (SP6) and Xuehai (SP10)) and set to a continuous wave, the intensity of which is based on the patient's preference. The rest of the acupoints are manipulated by lifting and twisting until *De qi* (in Chinese: 得气) a sensation of soreness, numbness, and heaviness is achieved. The needling technique is the even reinforcing-reducing method. The needles remain inserted for 30 minutes each session.

The four acupoints Tianshu (ST25), Zigong (EX-CA1), Sanyinjiao (SP6) and Xuehai (SP10) are used for electro-acupuncture. The

remaining points were used without electro-acupuncture.

Frequency: 1 treatment a week, 12 times per treatment course. The three groups of acupoints were used in each session.

Outcomes: Of the 40 patients, 33 cases were clinically cured and 7 cases were ineffective. The rate of overall effectiveness was 82.5%. The total rate of clinically cured patients = the number of patients cured / the total number of patients × 100%.

Table 1: Outcomes of the 40 cases (n (%)).

Types of menstrual irregularities	Number of cases	Clinically cured	Ineffective	Total rate of clinically cured
Amenorrhea ¹	13	10	3	76.92%
Early Menstruation ²	12	9	3	75%
Delayed Menstruation ³	15	14	1	93.33%
Total	40	33	7	82.50%

Explanation of the table:

1. The absence of menstruation for one or more menstrual periods [4].
2. The menstrual cycle is more than 7 days in advance, or even more than 10 days, for more than 2 consecutive months [5].
3. The menstrual cycle is delayed for more than 7 days, or even later, for more than 2 consecutive months [5].

Discussion

From the perspective of TCM etiology and pathology, COVID-19 is caused by the invasion of the body by “Cold-Damp with Toxins”, which is primarily located in the lungs and spleen, and can involve the stomach and large intestine as well [14]. COVID-19 not only damages the respiratory system, but also damages the brain, lungs, heart, liver, kidneys, blood system, nervous system, and reproductive system [15-17]. Contracting the COVID-19 virus and the stress related to contracting it can impact both menstruation and the menstrual cycle [18].

According to Traditional Chinese Medicine (TCM) theory, menstrual blood flow comes from the kidneys because the kidneys are most closely related to the physiological development of women, including menstruation. The first reference to this is found in the ancient TCM treatise (475 to 221 BC), *The Yellow Emperor's Classic of Internal Medicine* (in Chinese: 黄帝内经): “In general, the reproductive physiology of woman is such that at seven years of age, her kidneys' energy is strong. At fourteen years, Tian Gui, her fertility essence is mature, the Ren meridian and Chong meridian are flourishing, menstruation begins, and conception is possible.” The second reference is by Fu Shan (1607-1684 AD) of the Qing Dynasty. He states, in his famous treatise *Fu Qingzhu's Obstetrics and Gynecology* (in Chinese: 傅青主女科): “Kidney is the original source of menstruation.” and “The spleen is acquired, the kidney is innate. The spleen cannot generate without innate qi.”

TCM believes that menstrual disorders are related to the function of the kidneys as well as to the spleen, liver, qi and blood in the uterus and disharmony between the Chong meridian and the Ren

meridian. After 12 sessions of acupuncture, the menstrual duration, volume and length had completely returned to normal for 33 of the women. The associated main symptoms were healed, premenstrual syndrome (PMS) decreased, and the quality of the life improved.

Acupuncture protocol treats menstrual irregularities by using specific acupoints to improve the flow of blood and qi to the ovaries and uterus, nourish the blood and qi, soothe the liver, invigorate liver qi, invigorate the spleen and kidney qi, and restore harmony between the Chong and Ren meridians.

In this article, the treatment strategy determined was to use electro-acupuncture at the acupoints Tianshu (ST25), Zigong (EX-CA1), Sanyinjiao (SP6) and Xuehai (SP10). The functions of each acupoint are listed below.

Tian Shu (ST25) belongs to the stomach meridian of foot yangming. It is also the front mu point of the large intestine meridian. Tian Shu means “Heaven's Pivot”, which is one of the names for the constellation the Big Dipper. Its clinical applications are gynecological disorders such as menstrual irregularities, amenorrhea, painful menstruation, fibroids, cysts, leukorrhea and infertility; intestinal issues such as constipation, diarrhea, dysentery, distension, abdominal pain or distension, bloating, indigestion, acute and chronic gastritis, and acute and chronic enteritis.

Zigong (EX-CA1) is one of the extraordinary points. It is commonly used to treat gynecological diseases. Zigong (EX-CA1)'s main functions are to lift and regulate qi in the lower burner so as to regulate menstruation and reduce the related pain. It primarily treats prolapse of the uterus, menstrual irregularities, dysmenorrhea, lower abdominal pain, lumbar pain, hernia, pyelonephritis, cystitis, and orchitis.

Sanyinjiao (SP6) is the meeting point of the three yin meridians of the foot, which strengthens the spleen, soothe the liver and benefit the kidneys. It's an important point in the treatment of gynecological conditions such as menstrual irregularities, dysmenorrhea, metrorrhagia, leukorrhea, amenorrhea, prolapse of uterus, dystocia, postpartum faintness, persistent lochia, and infertility.

Xuehai (SP10) means the “Sea of Blood”. As the name implies, SP

10 is the point for treating disorders relating to the blood (Blood Stasis, Heat in the Blood). It invigorates moves and cools the blood to treat menstrual irregularities, metrorrhagia, urticaria, eczema, and erysipelas.

Guanyuan (REN4) is the front-mu point of the small intestine, the intersection of the Ren vessel and the three yin meridians of the foot (spleen, liver and kidney). Guanyuan (REN4) tonifies kidney qi, nourishes blood and yin, strengthens the uterus and regulates menstruation. It is often used for gynaecological diseases such as menstrual irregularities, metrorrhagia, morbid leukorrhea, dysmenorrhea, prolapse of the uterus, infertility, and postpartum haemorrhage.

The Zusanli (ST36) acupoint is the most important point on the stomach meridian, which regulates the spleen and stomach, and qi and blood. It has the special function of invigorating the spleen and qi, which strengthens the immune system of the body.

Hegu (LI4) is the yuan-source point of the large intestine meridian, which dispels wind and relieves superficies syndrome, clears heat and opens the orifices, dredges the meridians and activates the collaterals, and sedates and relieves pain.

Taichong (LIV3) is the yuan-source point of the liver meridian, which calms the liver and shock, soothes the liver and regulates qi.

Hegu (LI4) and Taichong (LIV3) are compatible acupoints. The combination of Liv3 and LI4 is classically known as “The Four Gates” of the body, which promote the circulation of qi. Applying different reinforcing and reducing methods has a variety of treatment functions, such as expelling wind, relieving superficies syndrome, opening the chest, regulating qi, calming the liver, eliminating wind, sedating and soothing the nerves, relieving spasms and convulsions, promoting blood circulation, removing blood stasis, clearing heat, removing dampness, unblocking qi in the stomach and intestines, clearing the meridians of obstruction, relieving pain, purging the lungs, resolving phlegm, soothing the liver, relieving the gallbladder, invigorating qi and blood, and reinforcing the liver and kidneys.

Neiguan (PC6) is a key point for moving qi and blood in the chest. It nourishes heart qi, nourishes the blood, calms the mind and stops dizziness.

Gongsun (SP4) is the luo-connecting point of the spleen meridian and master point of the Chong vessel. Gongsun (SP4) pairs with Neiguan (PC6) to treat menstrual irregularities, retention of placenta, and postpartum faintness. Gongsun (SP4) is also used for epigastric pain, chest congestion, distention in the hypochondrium, acute gastric pain, gastric distention, poor appetite, pain around the umbilical region, and diarrhea.

Taixi (KID3) is the yuan-source point of the kidney meridian. KID 3 is important to use for kidney deficiency patterns. Clinically, yuan-source points are of great significance in treating diseases of

the internal organs, the indications of which are various: menstrual irregularities, impotence, spermatorrhea, frequent need to urinate, deafness, tinnitus, lumbar pain, headache, dizziness, blurring of vision, toothache, swelling of pharynx, cough, asthma, diabetes, and insomnia.

Qihai (REN-6) is one of the most important points for tonifying yang and primordial qi.

Diji (SP8) is the xi-cleft point of the spleen meridian. It removes blood stagnation, regulates menstrual irregularities, and stops bleeding.

Qimen (LIV14) is the front-mu point of the Liver Meridian, the intersection the of the liver and spleen meridians and the yin wei vessel. The clinical applications are depression, distension and pain in the chest, hypochondrium, abdominal distension, hiccups, and acid regurgitation.

Acupuncture is effective because acupuncture improves the activity of the hypothalamic-pituitary-ovarian (HPO) axis, which is the dominant system controlling ovulation during puberty [19]. In addition, electro-acupuncture has both anti-inflammatory and cardio-protective effects [20]. Electro-acupuncture also has a significant therapeutic effect in the improvement of the menstrual cycle [21]. This study shows that electro-acupuncture not only restores the menstrual cycle of patients, but also adjusts and improves the hormone levels (E2, FSH, LH). The continuous wave of an electro-acupuncture device enhances the effects of regulating qi and blood. It dilates the blood vessels in the body, which increases blood circulation, improves a hypoxic-ischemic state, and regulates blood flow, all of which result in regulating the menstrual cycle.

Conclusion

This article shows that electro-acupuncture is an effective treatment for menstrual irregularities after a COVID-19 infection. It restores the menstrual duration, volume and length of cycle. It also shows that acupuncture is an effective method of improving a patient's health outcomes naturally.

Authorship and Contributions

Xiangping Peng wrote the manuscript. Guanhu Yang contributed on the use of Traditional Chinese medicine (TCM) theory for menstruation.

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Conflict of Interest

The authors declare no conflict of interest.

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