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THE ROLE OF ACUPUNCTURE IN A SYSTEMIC LUPUS ERYTHEMATOSUS PATIENT: A CASE STUDY

PERAN AKUPUNKTUR PADA PASIEN LUPUS ERITEMATOSUS SISTEMIK: STUDI KASUS

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Case Study
Studi Kasus

A B S T R A C T

Background: *Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease commonly characterized by symptoms such as frequent headaches, joint pain, and occasional body swelling. Acupuncture, a traditional Chinese medicine therapy, has been identified as a possible alternative for managing symptoms in SLE patients, especially for those seeking relief from the side effects of conventional treatments.* ***Purpose:*** *This study aims to evaluate the effectiveness and safety of acupuncture, a minimally invasive therapy, in addressing chronic and complex complaints in a SLE patient.* ***Case analysis:*** *A case study was conducted on a 23-year-old woman diagnosed with SLE presenting complaints of frequent headaches, joint pain, and occasional body swelling. Data were collected through observation, hearing (auscultation)/smelling (olfaction) assessment, interview, and palpation. The patient underwent 12 acupuncture sessions with assessments conducted before and after therapy, including Traditional Chinese Medicine (TCM) examination, abdominal ultrasound, chest X-ray, and laboratory tests.* ***Result:*** *Following acupuncture therapy, the patient's headaches were resolved, joint pain diminished, and swelling subsided.* ***Conclusion:*** *Acupuncture can be an effective supportive therapy and a safe option for reducing various symptoms in SLE patients.*

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A B S T R A K

Latar belakang: Sistemik Lupus Eritematosus (SLE) adalah penyakit autoimun kronis yang seringkali muncul dengan gejala seperti sakit kepala yang sering, nyeri sendi, dan kadang-kadang pembengkakan tubuh. Akupunktur, terapi pengobatan tradisional China, telah diidentifikasi sebagai alternatif yang mungkin untuk mengelola gejala pada pasien SLE, karena banyak pengobatan konvensional yang menimbulkan efek samping yang berbahaya, pasien sering mencari pengobatan alternatif ini. **Tujuan:** Studi ini bertujuan untuk mengevaluasi efektivitas dan keamanan akupunktur yang memiliki efek samping minimal dalam mengatasi keluhan kronis dan komplikasi pada pasien SLE. **Analisis kasus:** Studi kasus dilakukan pada seorang wanita berusia 23 tahun yang didiagnosis menderita SLE dan mengeluhkan sakit kepala yang sering, nyeri sendi, dan kadang-kadang pembengkakan tubuh. Data dikumpulkan melalui observasi, penilaian pendengaran/penciuman, wawancara, dan palpasi. Pasien menjalani 12 sesi terapi akupunktur. Sebelum dan setelah terapi akupunktur, dilakukan pemeriksaan *Traditional Chinese Medicine (TCM)*, USG abdomen, rontgen dada, dan tes laboratorium. **Hasil:** Setelah menjalani terapi akupunktur, sakit kepala pasien menghilang, nyeri sendi berkurang, dan pembengkakan berkurang. **Kesimpulan:** Akupunktur dapat menjadi terapi pendukung yang efektif dan pilihan yang aman untuk mengurangi berbagai gejala pada pasien SLE.

Kata kunci:
Akupunktur, Pembengkakan tubuh, Sakit kepala, Nyeri sendi, Sistemik lupus eritematosus

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INTRODUCTION

A global study estimates that approximately 5.14 per 100.000 people are diagnosed annually with Systemic Lupus Erythematosus (SLE), corresponding to around 400.000 new cases worldwide each year. Women are significantly more affected, with an estimated incidence of 8.82 per 100.000 person-years compared to 1.53 in men (Tian *et al*., 2023). Estimates of SLE cases in North America vary widely, with the reported overall incidence ranging from 3.7 per 100.000 person-years to 49 per 100.000 in the U.S. Medicare population (Li *et al*., 2020). A study conducted at Sanglah General Hospital revealed that 93.5% of SLE patients are women with age distribution as follows: 36.1% are young adults (17 - 30 years old), 11.2% are middle-aged adults (31 - 44 years old), and 52.7% are older adults (>45 years old). The most commonly reported symptom is arthritis (88%), followed by Mucocutaneous manifestations (86%) and fever) (71%). Approximately 47% of patients experience kidney involvement or lupus nephritis. Among female lupus nephritis patients, 34.9% achieve complete kidney response while 11.2% achieve partial kidney response. Of those treated for more than 5 years, 20.4% achieve complete kidney response, whereas 10.5% of patients treated for less than 2 years achieve partial kidney response (Tjan *et al*., 2022).

SLE is a complex autoimmune disease that affects multiple organs, including the skin, joints, kidneys, and heart (Justiz Vaillant *et al*., 2024). Lupus, a chronic autoimmune disease, presents a complex challenge in modern medicine due to its unpredictable nature and varied symptoms that affect multiple organs and systems in the body (Greenan-Barrett *et al*., 2021). Conventional treatments for lupus primarily focus on managing symptoms and controlling inflammation (McKeon and Jiang, 2020). However, complementary and alternative medicine approaches, such as acupuncture, have gained attention for their potential in improving the quality of life for lupus patients (Wang and Wallace, 2022). Research suggest that acupuncture and massage may benefit SLE patients in several ways: by alleviating pain, as these therapies can help reduce pain experienced by people with lupus; by enhancing sleep quality, since these method have the potential to improve sleep, which is often disrupted in SLE patients; and by boosting overall health-related quality of life, as managing pain and improving sleep may lead to better outcomes for individuals with SLE (Mooventhan and Nivethitha, 2014).

Acupuncture is a key component of *Traditional Chinese Medicine (TCM)* that involves the insertion of thin needles into specific points on the body to stimulate energy flow and restore balance (Pan *et al*., 2022; Ma *et al*., 2023), involves the insertion of thin needles into specific points on the body to stimulate and balance the flow of energy, known as Qi (Wang *et al*., 2021), which is believed to be essential for health and well-being. The holistic approach of acupuncture aligns with the concept of treating the individual as a whole, rather than focusing solely on isolated symptoms or disease (Zhu *et al*., 2021). This is particularly relevant in the case of lupus, where symptoms can be widespread and impact various aspects of life (Trivedi *et al*., 2022). When performed by trained professionals, acupuncture is generally regarded as safe and has been increasingly explored as a complementary therapy for chronic conditions, including SLE (Zhang *et al*., 2021). The novelty of acupuncture's role in addressing complaints of lupus patients lies in its potential to complement conventional treatments by offering a holistic approach to symptom management (Iravani *et al*., 2020).

This holistic approach is particularly relevant to lupus, where symptoms are diverse and affect multiple systems. This approach is believed to regulate the immune system (Sharma and Sharma, 2022), reduce inflammation, and promote healing (Monteiro et al., 2022). Several studies have suggested that acupuncture may be beneficial for patients with autoimmune conditions, including SLE, by modulating immune responses and reducing inflammation (Strand *et al*., 2020). In addition to its potential therapeutic effects, acupuncture is recognized for its favorable safety profie and low risk of adverse effects (Li *et al*., 2021). These characteristics make it an appealing complementary or alternative therapy for lupus patients Its non-invasive nature and potential for improving overall well-being further enhance its appeal as a novel approach to managing lupus symptoms (Wang and Wallace, 2022).

Despite its promise, research on acupuncture for lupus management is still relatively scarce in Indonesia. This scarcity prompts further investigation into the effectiveness and safety of acupuncture in addressing the various symptoms experienced by lupus patients.

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CASE STUDY

A 23-year-old female patient presented with a one-month history of headaches and had undergone 12 therapy sessions between March 13th, 2023, and June 30th, 2023, at the Mandiri Clinic in Lawang. The headaches were accompanied by joint pain and body swelling, particularly in the face. Physical examination revealed a blood pressure of 170/100 mmHg, facial swelling, a red rash on the legs, and facial pain with movement due to joint pain. The patient was diagnosed with lupus erythematosus in 2019 at a hospital in Singapore. She had been receiving regular medical treatment at RSSA, including medication and diagnostic tests.

Traditional Chinese Medicine (TCM) examination

The Traditional Chinese Medicine (TCM) assessment included facial features, tongue, pulse, smell, hearing, and an interview. The TCM examination revealed

several notable findings. Observation of facial features showed dry skin, while the tongue appeared swollen with redness along the edges. The patient's pulse was weak and slow. An unpleasant body odor was detected during the olfactory (smell) assessment, though no auditory deficits were noted. During the interview, the patient reported frequent stomach cramps after eating, generalized body aches and pains, and severe headaches that significantly interfered with her daily activities.

Western medicine laboratory findings

Several diagnostic tests conducted over time revealed key clinical findings. A Complete Blood Count (CBC) on January 22nd, 2019, indicated iron deficiency and a suspicion of thalassemia, along with a positive Antinuclear Antibody (ANA) test. A Urine Complete Examination (UEC) on February 19th, 2019, showed the presence of proteinuria, hematuria, and bacteria. A chest X-ray performed on January 5, 2023, revealed cardiomegaly, while an abdominal ultrasound on January 10th, 2023, indicated hepatosplenomegaly. Finally, an anatomic pathology examination in January 2023 confirmed a diagnosis of diffuse segmental lupus nephritis.

After a thorough examination, the patient was provided with a detailed explanation of acupuncture therapy. Upon understanding the procedure and its potential benefits, she signed an informed consent form. Acupuncture treatment commenced, with a total of 12 sessions planned. Due to the patient's busy schedule as a housekeeper and caregiver for her employer's baby, the sessions could not be held strictly once a week. Instead, the treatment schedule was adjusted to accommodate her availability.

RESULT

The acupuncture treatment involved the selection of specific acupoints based on the patient's symptoms and TCM diagnosis. Acupuncture points selected for treatment included ST36 (Zusanli), SP6 (Sanyinjiao), and CV4 (Guanyuan), along with LI11 (Quchi), LI4 (Hegu), LV3 (Taichong), SP10 (Xuehai), BL17 (Geshu), LI20 (Yingxiang), and LU7 (Lieque). The acupuncture procedure involved the use of single-use filiform needles made of stainless steel, inserted perpendicularly to a depth of 0.5-0.8 cun, with rotational manipulation every 10 minutes.

Following the first acupuncture session, the patient reported a slight reduction in headaches and joint pain. The therapy continued for a total of 12 sessions. A comparison of the results between the first and twelfth sessions revealed significant improvements.

Four Examination Methods at the 12th therapy session (Monday, July 17th, 2023). Observation (Wang) revealed that the patient's tongue appeared pink with a thin white coating, red rashes and hematomas were no longer visible, the cheeks were slightly thinner. Smell (Wen): unpleasant body odor was no longer present. Interview revealed that (Wen) the patient reported no headaches or joint pain, alleviation of postprandial abdominal pain, and an increased appetite. Palpation revealed that (Qie): the pulse was normal strong, with a rate of 76 beats per minute, while blood pressure was recorded at 130/70 mmHg.

Western medicine laboratory findings conducted on August 8th, 2023 revealed substantial clinical improvements demonstrated in the follow-up Complete Blood Count (CBC) and Urinalysis (UA). Although not all values had reached normal range, most parameters showed marked progress. The results showed that Hemoglobin (Hb) increased from 8.3 to 10.6 (normal range: 11.5), Red Blood Cells (RBCs) increased from 3.6 to 4.71 (normal range: 3.80), urine leukocytes decreased from 164 to 2 (normal range: <10), urine erythrocytes decreased from 108 to 16 (normal range: <3), bacteria were still present, and protein remained positive (3) (normal range: negative). An abdominal ultrasound conducted on August 8th, 2023 revealed that hepatosplenomegaly had resolved, and all parameters were within the normal range. Similarly, a chest X-ray on August 11th, 2023 revealed that cardiomegaly had resolved with the current findings showing a normal impression. No significant side effects were reported during the study period. The most common side effects observed were mild and temporary, such as slight pain and bruising.

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DISCUSSION

A 23-year-old female patient presented with a primary of persistent headaches lasting one month, accompanied by joint pain and facial swelling. Physical examination revealed a blood pressure of 170/100 mmHg, facial swelling, a red rash on the legs, and facial pain with movement due to joint pain. The patient was diagnosed with lupus erythematosus in 2019 at a hospital in Singapore, from the perspective of TCM, lupus is viewed as a disease caused by an energy imbalance in the body, influenced by external factors like weather, emotions, diet, and lifestyle. It is characterized by the production of autoantibodies that target the body's own tissues (Sato *et al*., 2020), leading to inflammation, tissue damage, and a range of symptoms such as fatigue, joint pain, skin rash, and organ dysfunction (Kondo *et al*., 2021).

Since being diagnosed with lupus, the patient has been taking medication. However, she sometimes feels bored because she perceives little improvement in her symptoms. While conventional treatments for SLE focus on managing symptoms and preventing flare-ups, complementary therapies such as acupuncture have gained attention for their potential to alleviate symptoms and improve the quality of life in SLE patients

(Yang *et al*., 2022). Unlike many conventional treatments that primarily target specific symptoms or aspects of the disease, acupuncture aims to restore balance and harmony to the body as a whole (Mota *et al*., 2022).

The patient's condition was assessed through the lens of TCM, leading to a diagnosis of Qi and blood deficiency, as indicated by symptoms such as fatigue and dry skin. Heat and toxins were also identified, manifesting as skin rash, joint pain, and swelling. Blood Stagnation was another diagnosis, indicated by joint pain, skin rash, and menstrual disorders. Furthermore, a Jin Ye (body fluid) disorder was noted, suggesting a disturbance in the digestive system.

In treating lupus, acupuncture aims to restore Qi and blood balance, and clear heat and toxins. The therapy was conducted over a total of 12 sessions. However, the sessions could not be consistently held once a week due to the patient's busy schedule. Currently, there are no journals that spesifically compare the effectiveness of regularly scheduled weekly acupuncture sessions with irregular ones. Despite the irregular timing, a comparison between the results of the first and twelfth therapy sessions showed an improvement in the patient's condition. Research on the basic mechanisms of acupuncture's analgesic effects has found that it can relieve pain from inflammation by involving peripheral, spinal, and supraspinal mechanisms (Lyu *et al*., 2021), effectively working through both opioid and non-opioid pathways (Pan *et al*., 2022). Additionally, this research also indicates that acupuncture can induce the brain to release neuromodulatory polypeptides with opioid agonist properties (Zhu *et al*., 2021).

Stimulation of acupuncture points works through the vagus nerve to transmit signals and enhance anti-inflammatory responses (Courties *et al*., 2021), which is related to the reduction of pathological inflammation through a mechanism known as the "cholinergic anti-inflammatory response" (Oh and Kim, 2022). The analgesic effect of acupuncture at LI4 is related to the gate-control theory and the release of enkephalins and endorphins.

One of the acupuncture points commonly used in lupus treatment is LI4 (Hegu). This point, located between the thumb and index finger, can help reduce inflammation, improve blood circulation, and stimulate the immune system (Ng *et al*., 2022). Acupuncture can be an effective therapeutic option for reducing lupus symptoms by modulating the immune system, relieving inflammation, improving blood circulation, and reducing symptoms such as pain and fatigue (Iravani *et al*., 2020). In TCM, lupus is often associated with an imbalance of Qi (energy) and blood, as well as the accumulation of heat and toxins in the body (Liu *et al*., 2022).

Acupuncture aims to restore the body's internal balance by stimulating specific acupuncture points (Li *et al*., 2021). One such point is SP6 (Sanyinjiao) which plays a key role for regulating the immune system and increasing overall body energy (Zhang *et al*., 2020). This point is believed to help modulate immune system and regulate inflammation (Shui *et al*., 2019), potentially alleviating SLE symptoms like joint pain, facial pain, and inflammation. The mechanism of SP6 involves regulating immune cell activity, particularly T cells and B cells, and reducing the production of pro-inflammatory cytokines and autoantibodies, thereby mitigating the immune system's attack on the body's own tissues (Zhi and Gao, 2020).

SP6 acupuncture may also help regulate neurotransmitter levels, particularly serotonin and dopamine, which play crucial roles in mood, sleep, and pain perception. By balancing these neurotransmitters, acupuncture may alleviate neuropsychiatric symptoms and improve overall well-being (Hershman *et al*., 2018). Additionally, SP6 is believed to stimulate the release of endorphins, the body's natural pain relievers, contributing to its analgesic effects and reducing pain perception in SLE patients (Saraswati *et al*., 2021).

Another significant acupuncture point, ST36 (Zusanli), is recognized for its role to modulate pain signaling by influencing the release of neurotransmitters and neuropeptides involved in pain perception. It may help reduce the transmission of pain signals along the spinal cord and ascending pathways to the brain, thereby alleviating pain associated with SLE symptoms like joint and facial pain. ST36 possesses anti-inflammatory properties by influencing the release of inflammatory mediators like prostaglandins and leukotrienes. Additionally, it may also promote the production of anti-inflammatory substances, helping to balance the inflammatory response and potentially reducing pain related to inflammation (Parvizi *et al*., 2022).

LI11 (Quchi) and LI4 (Hegu) acupuncture can stimulate the release of endorphins and enkephalins, which have anti-inflammatory and analgesic effects, thereby reducing pain and inflammation in SLE symptoms like joint and facial pain. Stimulation of these points can inhibit pain pathways in both the central and peripheral nervous systems, reducing the transmission and perception of pain. Furthermore, it can also stimulate the endocrine system to release hormones like cortisol, which help in reducing pain and inflammation (Yuan and Wang, 2019).

The acupuncture point GV14 (Dazhui) plays a crucial role in boosting the immune system and reducing stress, a known trigger for lupus flare-ups. This point stimulates the release of endorphins, contributing to the analgesic effects of acupuncture and reducing pain perception in SLE patients with joint and facial pain (Sharma and Sharma, 2022). The use of acupuncture in addressing lupus symptoms aims not only to treat symptoms directly but also to stimulate the body to heal itself. This therapy can help improve the quality of life for lupus patients by reducing their need for medications that may have unwanted side effects (Wang *et al*., 2023).

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CONCLUSION

Acupuncture therapy has demonstrated promising benefits in the management of SLE, particularly in alleviating symptoms as joint pain, skin rashes, and fatigue. The use of acupuncture in lupus treatment can also help reduce the need for medications that may have unwanted side effects. Additionally, acupuncture therapy can stimulate the body's natural healing process by restoring energy balance and improving blood circulation. Therefore, acupuncture can be an effective supportive therapy and a safe option for reducing various symptoms in SLE patients.

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AUTHOR CONTRIBUTION

All authors contributed significantly to this study. M. W. and A. P. conceived and designed the research framework. M. W. carried out the experimental procedures and collected the data. A. P. performed data analysis and interpretation. Both authors contributed to the manuscript preparation, critical revision, and approved the final version for submission.

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DATA AVAILABILITY

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request. Due to privacy concerns and ethical considerations, the detailed patient information and specific data cannot be publicly shared. However, aggregate findings related to acupuncture therapy's effects on SLE are included within the published article and its supplementary information files.

CONFLICT OF INTEREST

The authors state there is no conflict of interest with the parties involved in this study.

ETHICAL APPROVAL

This research has been approved by the ethics committee with number 1837/KEPK/IV/2022 issued on 10th April 2022 by the Health Research Ethics Commission of the RSUD Dr. Moewardi.

INFORMED CONSENT

This manuscript contains personal data of individuals in any form (including individual details, images, or videos), and consent for publication has been obtained from the relevant individual.

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