



Auricular point acupressure in patients with chronic low back pain: A literature study

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ABSTRAK

Latar Belakang: Nyeri punggung bawah kronis didefinisikan sebagai nyeri yang menetap selama 12 minggu atau lebih dan merupakan masalah kesehatan utama di seluruh dunia dan berhubungan dengan biaya medis yang tinggi, penurunan produktivitas, dan kecacatan. Penggunaan analgesik dengan obat antiinflamasi nonsteroid atau opioid merupakan salah satu strategi yang paling umum untuk mengelola CLBP, namun tidak terlepas dari berbagai efek samping yang merugikan. Penggunaan intervensi lain yang efektif untuk mengendalikan nyeri termasuk obat non-opioid, pengobatan topikal, modalitas fisik, dan terapi komplementer dan alternatif diperlukan untuk mengurangi efek samping yang dihasilkan dari penggunaan terapi farmakologis. Auricular Point Acupressure merupakan salah satu strategi komplementer Traditional Chinese Medicine (TCM) yang banyak digunakan secara klinis untuk mengobati rasa sakit. APA mungkin berguna untuk nyeri akut atau kronis, baik sendiri atau dikombinasikan dengan pengobatan lain.

Tujuan: Menganalisis efektivitas Auricular Point Acupressure untuk nyeri punggung bawah kronis.

Metode: Kajian literatur melalui online database yaitu: Google Scholar, PubMed, EBSCOhost, dan Scopus pada artikel dengan kriteria free full-text, menggunakan bahasa Indonesia atau Inggris, publikasi 10 tahun terakhir (2013-2022), dan desain penelitian clinical trial, randomized controlled trial, systematic review, meta-analysis. Penelusuran artikel menggunakan kata kunci (low back pain OR lumbar pain OR backache) AND (auriculotherapy OR auricular therapy OR auricular acupressure OR ear acupressure) AND (pain OR disability).

Hasil: Ditemukan 50 artikel dengan 5 artikel yang memenuhi kriteria inklusi. Dari kelima artikel tersebut, mayoritas menjelaskan bahwa penggunaan Auricular Acupressure relatif aman dan efektif untuk mengurangi nyeri punggung bawah kronis, beberapa artikel menunjukkan penurunan tingkat kecacatan dan peningkatan kualitas tidur.

Kesimpulan: Point Acupressure dapat dianggap sebagai terapi komplementer yang relatif aman dan efektif untuk mengurangi nyeri punggung bawah kronis.

KATA KUNCI: akupresur telinga; aurikuloterapi; nyeri punggung bawah kronis

ABSTRACT

Background: Chronic low back pain is defined as pain that persists for 12 weeks or more and is a major health problem worldwide and is associated with high medical costs, decreased productivity, and disability. The use of analgesics with nonsteroidal

anti-inflammatory drugs or opioids is one of the most common strategies to manage CLBP, but is not free from various adverse side effects. The use of other effective interventions to control pain including non-opioid medications, topical treatments, physical modalities, and complementary and alternative therapies is needed to reduce the side effects resulting from the use of pharmacological therapies. Auricular Point Acupressure is one of the complementary strategies of Traditional Chinese Medicine (TCM) that is widely used clinically to treat pain. APA may be useful for acute or chronic pain, either alone or in combination with other treatments.

Objectives: *To analyze the effectiveness of Auricular Point Acupressure for chronic low back pain.*

Methods: *Literature review through online databases namely: Google Scholar, PubMed, EBSCOhost, and Scopus on articles with free full-text criteria, using Indonesian or English, publication in the last 10 years (2013-2022), and research designs of clinical trials, randomized controlled trials, systematic reviews, meta-analysis. The article search used the keywords (low back pain OR low back pain OR back pain) AND (auriculotherapy OR auricular therapy OR auricular acupressure OR ear acupressure) AND (pain OR disability).*

Results: *50 articles were found with 5 articles meeting the inclusion criteria. Of the five articles, the majority explained that the use of Auricular Acupressure is relatively safe and effective for reducing chronic low back pain, some articles showed a decrease in disability rates and improved sleep quality.*

Conclusions: *Auricular Point Acupressure can be considered a relatively safe and effective complementary therapy for reducing chronic low back pain.*

KEYWORD: *auricular acupressure; auriculotherapy; chronic low back pain*

Article Info :

Article submitted on May 30, 2023

Article revised on July 10, 2023

Article received on September 01, 2023

INTRODUCTION

Low back pain occurs in the lumbar region, which supports most of the weight of the upper body. Chronic low back pain is defined as pain that persists for 12 weeks or more, even after the initial injury or underlying cause of acute low back pain has been treated (1). Low back pain (LBP) affects approximately 60%-80% of the world's population, and as much as 20% have developed into chronic symptoms (2). Chronic low back pain (CLBP) is a major health problem worldwide and is

associated with high medical costs, decreased productivity, and long-term disability (3).

The use of analgesics with non-steroidal anti-inflammatory drugs or opioids is one of the most common strategies to manage CLBP, but it is not free from a variety of adverse side effects, including drowsiness, constipation, dry mouth, gastrointestinal bleeding, and potential addiction (4). Other modalities for pain control exist including non-opioid medications,

topical treatments, physical modalities, and complementary and alternative medicine (5). Nonpharmacologic therapies are recommended by the American Pain Society (APS) and the American Society of Regional Anesthesia and Pain Medicine because it is simple, effective and economical, as well as reducing consumption of opioids and increasing patient satisfaction. One of the complementary and alternative treatments to reduce pain is by using Traditional Chinese Medicine (TCM) (6).

Chronic pain, according to the principles of Traditional Chinese Medicine, can occur due to blood stagnation, which will clog the channels, namely the meridians, causing painful processes and inefficient organ activity. The auricular points and meridians correspond to zang-fu, which corresponds to the functions of the organism. The therapeutic principle of Traditional Chinese Medicine is to relax muscles and promote blood circulation, by activating the meridians and regulating zang-fu functions (7). Auriculotherapy refers to the use of either acupressure or acupuncture to stimulate acupoints on the ear, is a nonpharmacological alternative for chronic pain (8,9). The ear or auricular has acupoints that reflect the whole body. The ear or

auricular has acupoints that reflect the entire body (6), so the stimulus of certain areas of the auricular cartilage can regulate Qi, activate energy pathways, and have a regulatory effect on zang-fu function (2). Auriculotherapy is effective in reducing chronic musculoskeletal pain, especially in the lumbar spine area (7). Auriculotherapy can be administered by auricular acupuncture, electroacupuncture, and acupressure. As a typical TCM therapy, Auricular Point Acupressure (APA) has been used in China for more than 2,000 years and has gradually spread to other countries in the past few hundred years. Acupressure, either as a standalone treatment or in combination with acupuncture, may be effective in reducing pain and improving functional disability in patients with lower back pain. The evidence suggests that acupressure may provide greater pain relief compared to physical therapy, usual care, tuina massage, or acupuncture alone (10). Unlike auricular acupuncture and electroacupuncture, APA is an acupuncture-like stimulation therapy to specific points on the ear (acupoints) without the use of needles. The use of seeds and metallic spheres for stimulation of auricular reflex points provides significant results in relation to reduction of chronic pain in the low

back (2) and more acceptable with minimal discomfort than using needles (7). Stimulation is provided by applying pressure with small objects, approximately 2 mm in size (e.g., botanical plant seeds or magnetic metal pellets), to the patient's ear acupoints with small pieces of waterproof tape to produce an acupuncture-like effect (4,6).

Auricular Point Acupressure (APA) offers a cost-effective alternative, non-invasive and easily administered adjunct treatment for chronic musculoskeletal pain that has no risk of cross-infection or side effects; thus, it is considered a nursing intervention that can be performed independently by nurses rather than acupuncture (11–13). The treatment was well-received by participants, with a high level of satisfaction reported (13). Before considering auricular point acupressure as a primary treatment for pain relief, it is crucial to exercise caution and consult healthcare professionals. Medical or nursing staff who have accredited to practice the APA can teach these interventions to adult patients to self-manage their pain by applying pressure as needed (6,9).

APA can reduce pain by using the same treatment principles as ear acupuncture (14). Several mechanisms explain the benefits of APA on chronic low back pain. First, based on TCM,

LBP is defined as an obstruction of Qi and blood in the meridians that can be caused by external trauma, internal deficiency of antipathogenic Qi, or invasion of exogenous pathogenic factors. APA, as a non-invasive therapy, focuses on achieving yin-yang balance and maintaining internal organ function through the regulation of Qi and blood in the body. Overall, APA can put all in balance and coordination (2).

Another theoretical explanation is that APA may facilitate the normalization of pathological hypersensitive reflex pathways connecting the ear microsystem and the somatotopic brain (6). The auricular microsystem is considered a reflexology of neurological mechanisms. Stimulation of peripheral reflex points in the auricle is activated along neuronal fibers from the auricle to the brain and from the brain through the spinal cord to body regions related to decreased pain and nerve excitability (2,3). APA is considered a clinical procedure to stimulate peripheral reflexes, which activate central brain pathways, thereby inhibiting maladaptive reflexes that contribute to pain and pathological disorders (15).

Several studies reported on the physiological mechanism of APA. Stimulation at acupoints is also

believed to cause vasodilation through the release of β -endorphin, which elicits short-term analgesic effects or neuropeptide-induced anti-inflammatory cytokines for long-term effects. Lin et al. (2015) conducted a study to determine the biological mechanism of APA in reducing pain by measuring serum levels of various cytokines in 4 weeks of APA therapy in CLBP. The results showed a decrease in proinflammatory cytokines (including IL-1, IL-2, and IL-6), an increase in anti-inflammatory cytokines (i.e., IL-4), and a decrease in CGRP before and after APA. Auricular point acupressure (APA) for chronic pain conditions showed significant improvements in self-reported pain intensity and pain interference. There

MATERIALS AND METHODS

The method used in this research is a literature review. This academic journal searches through 4 online databases, namely: Google Scholar, PubMed, EBSCOhost, and Scopus using the keywords (low back pain OR lumbar pain OR backache) AND (auriculotherapy OR auricular therapy OR Auricular Point Acupressure OR ear acupressure) AND (pain OR disability). 50 articles appeared in the search based on the predetermined keywords. The articles were then screened based on inclusion

were also significant changes in levels of inflammatory biomarkers, including TNF- α , β -endorphin, and IL-2. APA may have anti-inflammatory effects and contribute to pain relief through the inflammatory pathway (16).

Nurses play an important role in providing nonpharmacological interventions. They are required to know and understand the proper method of implementing an intervention and its effects. Non-pharmacological therapy Auricular Point Acupressure as a complementary therapy in back pain is not yet known for its effectiveness to reduce symptoms so a literature review is needed to determine the effectiveness of Auricular Point Acupressure in patients with chronic low back pain.

criteria, year of publication and language using Indonesian or English, publication in the last 10 years (2013-2022), title and abstract, methods, and results, resulting in 5 relevant articles available in full-text. The method of searching for articles in this literature review is shown in **Figure 1**.

RESULTS AND DISCUSSION

RESULTS

The following are selected journals based on the results of article searches that were tabulated and analyzed narratively.

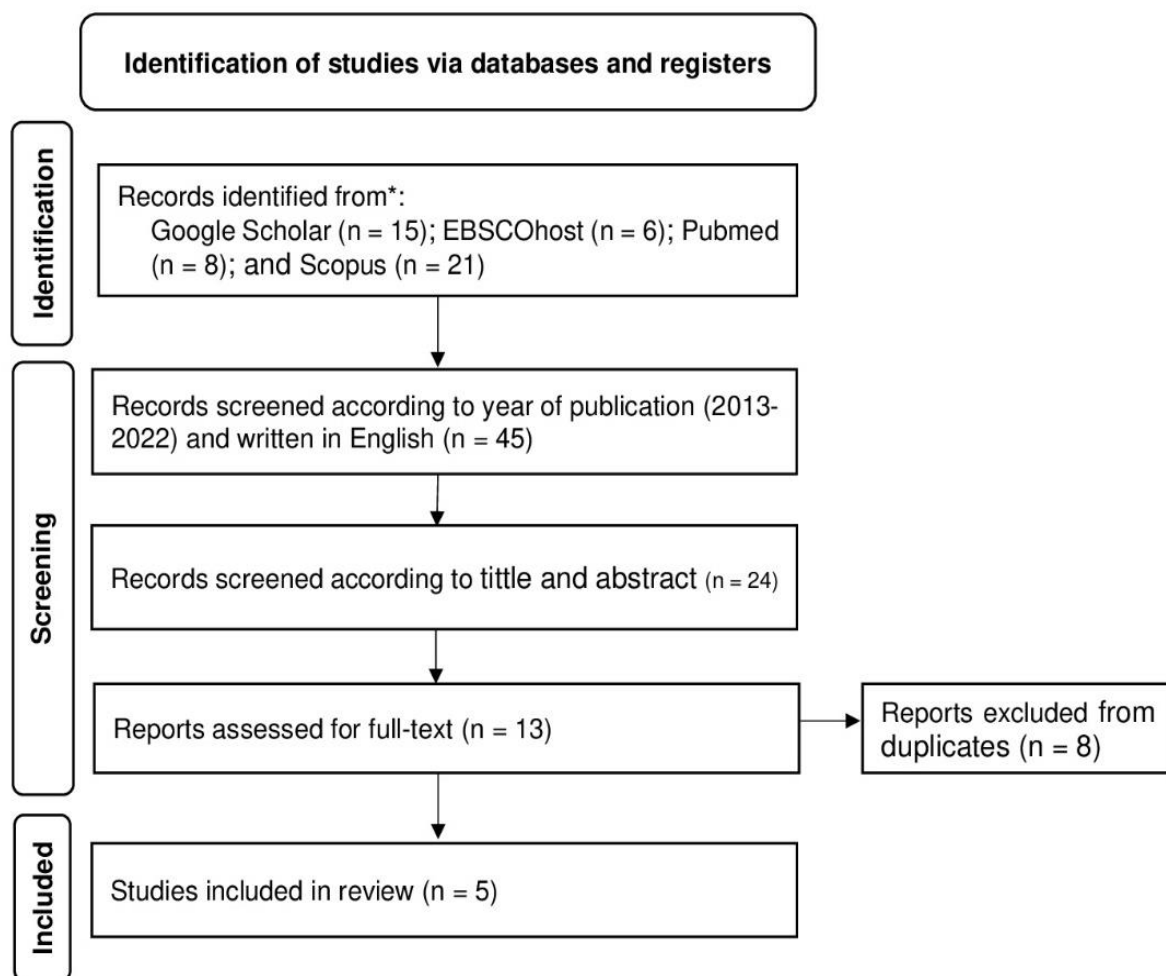


Figure 1. Article search flowchart

Table 1. Details of selected journal results

Author	Title	Objectives	Methods	Results
(Yeh et al., 2014)	Auricular Point Acupressure to Manage Chronic Low Back Pain in Older Adults: A Randomized Controlled Pilot Study	Assessing the feasibility and tolerability of APA intervention and assessment of its effects	Randomized Clinical Trial (RCT)	The decrease in severe pain from the beginning to the end of the intervention was 41% for the real APA group and the RolandMorris Disability Questionnaire (RMDQ) disability score decreased in the real APA group by 29%. The results suggest that APA can be an inexpensive and effective complementary method for back pain management.

(Lin et al., 2015)	The Inflammatory Actions of Auricular Acupressure for Chronic Low Back Pain	Anti-Point of APA analgesics	Knowing the physiological mechanism of	the Randomized Clinical Trial (RCT)	Decreased pain intensity by 56% and improved physical function by 26%. Decreased IL-1, IL-2, IL-6, and Calcitonin Gene-Related Peptide [CGRP] and increased IL-4. The results suggest that APA affects pain intensity through modulation of the immune system with changes in serum inflammatory cytokine and neuropeptide levels.
(Yeh et al., 2015)	Day-to-Day Changes of Auricular Acupressure to Manage Chronic Low Back Pain: A 29-day Randomized Controlled Study	Determine the effects of 4 weeks of treatment on chronic low back pain (CLBP) and daily variability of CLBP in individuals receiving APA for 29 days.		the Randomized Clinical Trial (RCT)	A 30% reduction in pain was shown after the first day of APA treatment, and a continuous reduction in pain (44%) was reported after 4 weeks of APA. Analgesic use was also reduced. APA is a non-invasive pain management strategy and can be self-managed by patients with CLBP.
(Yeh et al., 2016)	Changes in Sleep with Auricular Point Acupressure for Chronic Low Back Pain Chao	Assess the sleep quality of 4 weeks of APA designed to reduce chronic low back pain and determine the relationship between pain intensity and sleep quality.		the Randomized Clinical Trial (RCT)	The mean pain score in the APA group decreased by 3.53 points and the sleep quality outcomes showed a statistically significant decrease in scores in perceived sleep quality and an increase in Pittsburgh Sleep Quality Index scores at the end of the intervention (EOI) and 1-month follow-up.
(Yang et al., 2017)	Efficacy of Auricular Point	Identifying the effectiveness of		Systematic Review and	The results showed that, for the immediate effect, auricular

<p>Acupressure for auricular Chronic Low Back Pain: A Systematic Review and Meta-Analysis of Randomized Controlled Trials</p>	<p>acupressure on pain and disability in chronic LBP</p>	<p>Meta-Analysis</p>	<p>acupressure had a large and significant effect on pain reduction within 12 weeks. As for the follow-up effect, it also showed a good effect at the 4-week follow-up after the 4-week intervention (standardized mean difference = -1.13, 95% CI (-1.70, -0.56), $P < 0.001$). But, for the disability level, the therapeutic effect was not significant (mean difference = -1.99, 95% CI (-4.93, 0.95), $P = 0.18$). No serious adverse events were recorded. This study suggests that it is recommended to administer auricular acupressure to patients with chronic low back</p>
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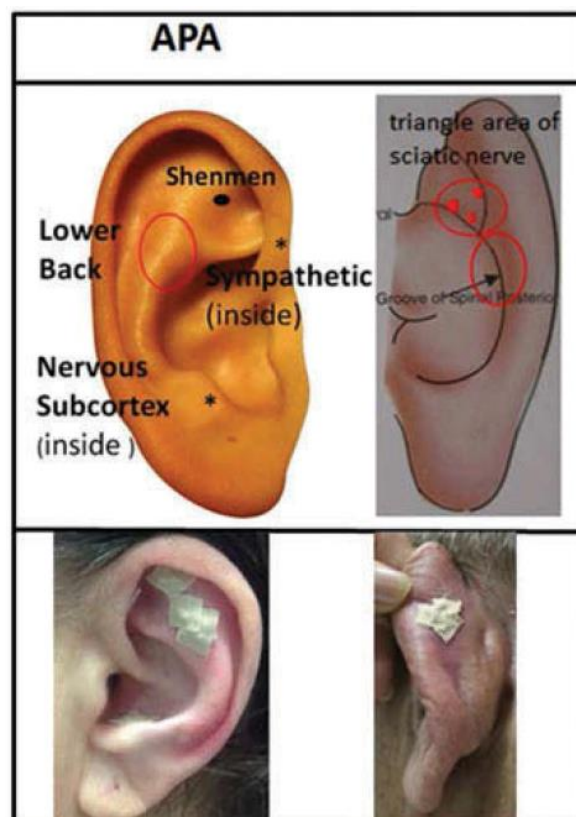


Figure 2. Auricular point for acupressure

DISCUSSION

Auricular Point Acupressure (APA) is part of a therapeutic technique based on TCM principles that have been widely used as a complementary strategy in preventive and curative aspects of health (2). Methods associated with APA interventions, such as the application of pressure, duration of each session, frequency per day, use of a diary, and length of intervention, can influence the effectiveness of the intervention (19).

The APA method begins with the determination of acupoints for reducing stress and pain (i.e., shenmen (the main point for relaxation), sympathetic (for reducing stress and pain), and subcortical nerves (for reducing stress and pain)), the active points associated with CLBP and sciatic located on the posterior side of the ear. Next, Vaccaria seeds were attached to each earlobe point that had been identified using a plaster (Figure 2). Pressing is done with the thumb and forefinger (at least 3 times a day for 3 minutes. and pressing the seeds for 3 minutes every time you experience pain). Patients were asked to remove the tape and seeds at the end of day 5 to keep the ear free of plaster for 2 days each week to minimize the risk of allergic reactions to the plaster and allow the acupoints to recover and

restore sensitivity before the next treatment. The duration of APA treatment is for four weeks (3,4,17,18,20).

A decrease in pain intensity was reported after using APA for 4 weeks (4). As a non-invasive intervention, APA is relatively safe to implement due to minimal side effects compared to other treatment options such as opiates or surgery (4) and a lower chance of infection than acupuncture (6). The most common side effect of APA is ear itching but it is tolerable (4).

The APA method can improve pain self-management because patients are taught to manage APA independently (19) thereby reducing the number of patient visits to health practitioners, reducing analgesic consumption, and reducing the cost of medical care (6,15,19). In addition, the daily activities of patients using APA are less disrupted due to the ease of self-administration (6). Complaints such as sleep disturbance if sleeping on the side of the APA insertion can be addressed by finding a comfortable position to sleep in (4).

Nurses play an important role in nonpharmacological interventions. They are required to know the correct protocols when implementing them. Nurses are responsible for communi-

cating with patients, so nurses must understand the effects of non-pharmacological measures to improve patient compliance. Therefore, the effect of APA in reducing pain intensity and the effective method of

CONCLUSION

AND RECOMMENDATION

Auricular Point Acupressure (APA) may be considered a complementary therapy in addition to standard therapy in the management of chronic LBP. APA has a pain-reducing effect at a 4-week follow-up after the intervention.

Compared to other methods, the main advantage of APA is that patients themselves can stimulate the acupoints

administering APA are two relevant things for nurses to know so that they can integrate the findings regarding APA into one of the nursing complementary therapy options.

by pressing the seeds attached to the ear with the thumb and forefinger. This implementation emphasizes the importance of patient involvement and collaborative care between patients and healthcare professionals. Further RCT studies are needed involving larger samples in chronic LBP for pain and disability assessment. The larger the sample size is expected to provide more accurate and reliable results identified the effectiveness of APA to treat chronic low back pain.

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