IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

TOPICAL APPLICATION OF APPLE CIDER VINEGAR AND TABLE SALT FOR SYMPTOMATIC RELIEF OF CHRONIC NONSPECIFIC LOW BACK PAIN: A SINGLE CASE STUDY

Dr. G. Vanitha[1], Dr. R. Anusha[2], Dr. D. Baby Shalini[3], Dr. P. Allwin Christuraj[4], C.J. Sowmiya[5]

1. Professor, Department of Fasting & Diet Therapy, Sree Ramakrishna Medical College of Naturopathy & Yogic Sciences, Kulasekharam, Tamil Nadu, India.
2. Professor, Department of Naturopathy, Sree Ramakrishna Medical College of Naturopathy & Yogic Sciences, Kulasekharam, Tamil Nadu, India.
3. Professor, Department of Pathology, Sree Ramakrishna Medical College of Naturopathy & Yogic Sciences, Kulasekharam, Tamil Nadu, India.
4. Professor, Department of Manipulative Therapy, Sree Ramakrishna Medical College of Naturopathy & Yogic Sciences, Kulasekharam, Tamil Nadu, India.
5. Student, Sree Ramakrishna Medical College of Naturopathy & Yogic Sciences, Kulasekharam, Tamil Nadu, India.

ABSTRACT

Background: Low back pain (LBP) is one of the leading causes of disability worldwide and is associated with substantial functional impairment, reduced quality of life, and increased healthcare utilization. Apple cider vinegar (ACV) and table salt have traditionally been used for musculoskeletal discomfort because of their purported anti-inflammatory and soothing properties; however, scientific evidence supporting their effectiveness in the management of low back pain remains limited.**Objective:** To describe the clinical outcomes following the topical application of an apple cider vinegar and table salt mixture in a patient with chronic nonspecific low back pain.**Case Presentation:**A 22-year-old female with chronic non-specific mechanical low back pain participated in a seven-day observational case study in which a topical mixture of apple cider vinegar and table salt was applied once daily to the lumbosacral region. Pain intensity was assessed using the Visual Analog Scale (VAS), while subjective changes in lumbar stiffness, mobility, and ability to perform activities of daily living were documented throughout the observation period.**Results:** The participant demonstrated a gradual reduction in pain intensity during the intervention period, accompanied by decreased lumbar stiffness, improved mobility, and greater ease in performing routine daily activities. The topical application was well tolerated, and no adverse effects were reported. Although symptomatic improvement was observed, pain persisted to a mild degree, and complete resolution was not achieved by the end of the observation period. **Conclusion:** This case report suggests a possible temporal association between topical application of apple cider vinegar and table salt mixture and symptomatic improvement in chronic nonspecific low back pain. Larger, well-designed randomized controlled trials are required to determine the efficacy and safety of this complementary intervention.

Keywords: Apple cider vinegar, table salt, chronic nonspecific low back pain, complementary therapy, topical application, musculoskeletal pain.

INTRODUCTION

Low back pain (LBP) is one of the leading causes of disability worldwide and poses a significant public health challenge due to its high prevalence, recurrent nature, and substantial socioeconomic burden. It affects individuals across all age groups and is associated with impaired physical function, reduced work productivity, psychological distress, and diminished quality of life. LBP contributes considerably to healthcare utilization and remains one of the most common reasons for medical consultations and work absenteeism. The primary objectives of LBP management are to relieve pain, restore functional ability, prevent recurrence, and improve overall quality of life through effective and evidence-based interventions (Qaseem et al., 2017).Despite the availability of conventional treatments, many individuals seek complementary and traditional therapies to manage low back pain. The use of these therapies is often influenced by cultural beliefs, affordability, accessibility, personal preferences, and concerns regarding the long-term use of medications. Home remedies continue to play an important role in self-care, particularly in communities where traditional practices have been passed down through generations. Complementary therapies are generally used alongside conventional medical treatment rather than as replacements (Maher et al., 2016).Apple cider vinegar (ACV) and table salt are among the traditional remedies frequently used for musculoskeletal discomfort. Therefore, this study aims to evaluate the effectiveness of apple cider vinegar and salt as a home remedy for managing low back pain.

METHODOLOGY

Study Design: This study was conducted as a single-case observational study to evaluate the effect of a topical mixture of apple cider vinegar (ACV) and table salt on symptomatic relief in an individual with chronic nonspecific low back pain. The study was observational in nature and did not include randomization, blinding, or a control group. The objective was to document changes in pain intensity and functional symptoms over a seven-day intervention period.

Participant: A 22-year-old female with a three-week history of moderate chronic nonspecific mechanical low back pain was included in the study. The pain was localized to the lumbosacral region without radiation to the lower limbs or associated neurological symptoms. The participant had no history of spinal trauma, inflammatory disorders, malignancy, previous spinal surgery, or red-flag symptoms such as bowel or bladder dysfunction, fever, or unexplained weight loss.

Intervention:A topical mixture consisting of apple cider vinegar and a small quantity of table salt was applied. The mixture was applied externally over the lumbosacral region once daily for seven consecutive days. The participant was instructed to maintain her usual daily activities within pain tolerance, avoid excessive lumbar strain, and refrain from introducing any new therapies specifically intended for low back pain during the observation period.

Outcome Measures: Pain intensity was assessed using the Visual Analog Scale (VAS), a validated 10-point scale ranging from 0 (no pain) to 10 (worst imaginable pain). Pain scores were recorded at baseline (Day 1) and subsequently on Days 3, 5, and 7. In addition to pain intensity, subjective changes in lumbar stiffness, ease of movement, and ability to perform activities of daily living were documented through participant self-report during each assessment.

Data Collection and Analysis: Clinical observations and patient-reported outcomes were recorded throughout the seven-day intervention period. Pain scores were summarized descriptively and presented in tabular form. Changes in symptoms over time were analyzed using descriptive methods only. No inferential statistical analysis was performed because the study involved a single participant. The findings are presented as clinical observations and should not be interpreted as evidence of treatment efficacy.

The participant was informed about the purpose of the study, the nature of the intervention, its potential benefits, and the limited scientific evidence supporting its effectiveness. Prior to participation, written informed consent was obtained, and personally identifying information was kept private throughout the

study to ensure confidentiality. The participant retained the right to discontinue the intervention at any time without consequence.

INTERVENTION

A topical pack was prepared by combining apple cider vinegar with a small quantity of table salt and was applied over the lower back once daily throughout the intervention period. This approach was based on its traditional use as a home remedy for musculoskeletal discomfort and was intended to provide symptomatic relief while complementing conservative management. The patient was advised to maintain normal daily activities within pain tolerance and to avoid excessive mechanical strain on the lumbar spine during the treatment period.

RESULT

Clinical observations throughout the intervention demonstrated a progressive reduction in pain intensity and lumbar stiffness. During the initial phase of treatment, only modest symptomatic improvement was noted, with the patient reporting slight relief in discomfort and improved tolerance to movement. Continued application of the topical pack was associated with further reduction in pain perception, enhanced lumbar mobility, and greater ease in performing functional activities such as sitting, standing, and bending. By the end of the intervention period, the patient described a marked overall improvement in symptoms compared with the baseline presentation. Functional capacity had improved, movement-related discomfort had diminished, and the patient reported greater comfort during activities of daily living.

Table 1

Day	Pain Score	Patient Report
Day 1	8/10	Baseline pain, stiffness present
Day 3	6/10	Slight improvement in discomfort
Day 5	4/10	Reduced pain perception
Day 7	3/10	Pain fluctuating; no full resolution

Table 1 shows that the pain analysis

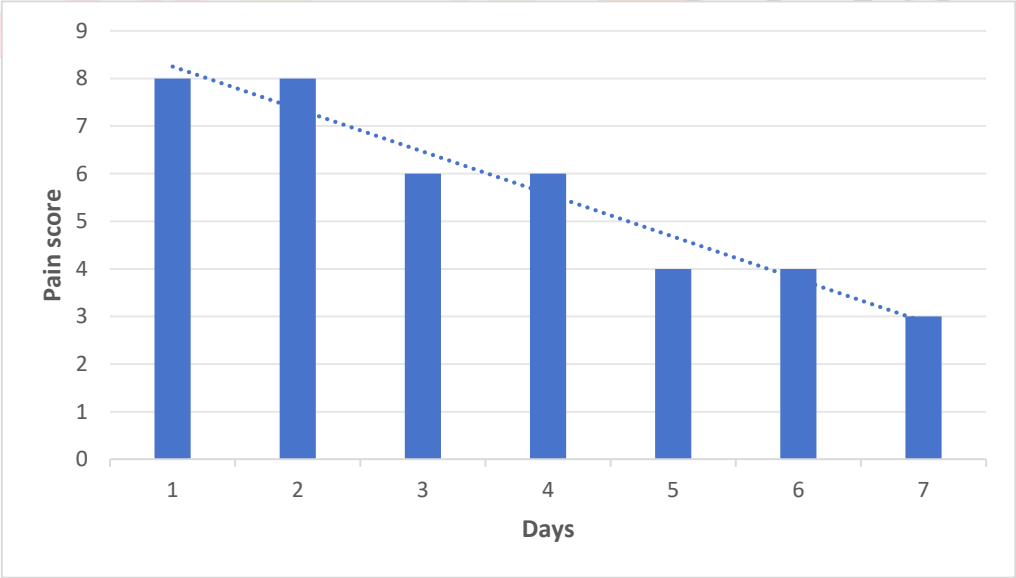

Fig.1, shows, the graph of pain score

The observed clinical improvement may be attributed to the supportive effects of the topical intervention, although the precise mechanism remains uncertain. Apple cider vinegar contains organic acids and polyphenolic compounds that have demonstrated antioxidant and anti-inflammatory properties in experimental studies, while hypertonic saline has been proposed to exert mild osmotic and local circulatory effects. Together, these factors may contribute to temporary relief of musculoskeletal discomfort by promoting local tissue relaxation and reducing perceived pain. Nevertheless, current scientific evidence

supporting the efficacy of topical apple cider vinegar and salt applications for chronic low back pain remains limited. Consequently, this intervention should be regarded as a complementary supportive therapy rather than a substitute for evidence-based management, and further well-designed clinical studies are required to establish its safety, effectiveness, and underlying mechanisms.

DISCUSSION

Low back pain (LBP) is one of the most prevalent musculoskeletal disorders worldwide and is associated with reduced mobility, impaired functional capacity, and diminished quality of life. There is increasing interest in complementary and traditional therapies that are inexpensive, easily accessible, and culturally acceptable, particularly in communities where such practices have long been used for symptom relief.

The present case explored the use of a topical pack prepared from apple cider vinegar (ACV) and table salt as a supportive intervention for low back pain. Traditional medicine attributes several beneficial properties to these ingredients, including the ability to promote local circulation, provide a soothing effect on muscles, reduce stiffness, and alleviate discomfort. The warm topical application may also contribute to muscle relaxation and improved patient comfort. Although these proposed mechanisms are widely discussed in traditional practice, they have not been confirmed by high-quality clinical research, and the available scientific evidence remains limited.

The findings of this case demonstrated a gradual reduction in the patient's perceived pain throughout the intervention period, accompanied by improved comfort and the ability to perform daily activities with less difficulty. These observations suggest that the ACV and salt pack may serve as a useful supportive measure when used alongside standard low back pain management rather than as a replacement for evidence-based medical care. The ease of preparation, low cost, and non-invasive nature of the intervention may also encourage patient adherence and acceptance, particularly in resource-limited settings.

This case suggests that the ACV and table salt pack have potential as a supportive complementary therapy for individuals with moderate low back pain who wish to incorporate traditional remedies into their overall management plan. When used appropriately and in conjunction with established treatment strategies, it may contribute to temporary symptom relief, enhanced patient comfort, and improved well-being. Healthcare professionals should continue to encourage evidence-based treatment while remaining open to discussing complementary approaches that are safe, culturally acceptable, and aligned with patient preferences.Larger, well-designed randomized controlled studies are required to establish the efficacy, safety, optimal application protocol, and underlying mechanisms of this traditional topical intervention before it can be recommended as an evidence-based treatment. Until such evidence is available, the ACV and table salt pack may be regarded as a promising supportive complementary approach that could enhance comfort and symptom management when integrated with conventional low back pain care.

CONCLUSION

This case report describes an observed improvement in pain intensity, lumbar comfort, and functional ability following the topical application of a mixture of apple cider vinegar and table salt in a patient with chronic nonspecific low back pain. Over the course of the observation period, the participant reported a gradual reduction in pain and stiffness, accompanied by greater ease in performing routine daily activities. While these findings suggest a temporal association between the intervention and symptomatic improvement.The case contributes preliminary observational information regarding the traditional use of a topical apple cider vinegar and table salt mixture as a complementary approach for the symptomatic management of low back pain. The intervention was simple to prepare, inexpensive, non-invasive, and well tolerated throughout the observation period, suggesting that it may be acceptable to some individuals seeking supportive home-based therapies. However, its use should be considered only as a complementary measure and should not replace established evidence-based treatments for low back pain.Future research should focus on conducting well-designed randomized controlled trials with adequate sample sizes, standardized intervention protocols, appropriate control groups, validated outcome measures, and longer follow-up.

REFERENCE

1. Amir Qaseem, Timothy J. Wilt, Robert M. McLean, and Mary Ann Forciea. 2017. Noninvasive treatments for acute, subacute, and chronic low back pain: A clinical practice guideline from the American College of Physicians. Annals of Internal Medicine,Volume 166, Number 7.

2. Chris G Maher,Rachelle Buchbinder (2016). Non-specific low back pain. The Lancet.

3. Hartvigsen, J., Hancock, M. J., Kongsted, A., Louw, Q., Ferreira, M. L., Genevay, S., Hoy, D., Karppinen, J., Pransky, G., Sieper, J., Smeets, R. J., Underwood, M., 2018.What low back pain is and why we need to pay attention.& Lancet Low Back Pain Series Workin (2018).Lancet, volume 391.Issue.10137.

4. Nadine E Foster, Johannes R Anema, Dan Cherkin, Roger Chou, Steven P Cohen, Douglas P Gross, Paulo H Ferreira, Julie M Fritz, Bart W Koes, Wilco Peul, Judith A Turner, Chris G Maher.2018.Prevention and treatment of low back pain: evidence, challenges, and promising directions., on behalf of the Lancet Low Back Pain Series Working Group.Volume 391,2018.

5. Institute for Health Metrics and Evaluation. (2020). Global Burden of Disease Study 2019.

6. Damian Hoy,Lyn March,peter Brooks,Fiona Blyth, Anthony Woolf,Christopher Bain, Gail Williams,Emma Smith,Theo Vos,Jan Barendregt,Chris Murray,Roy Burstein,Rachelle Buchbinder.2014.The global burden of low back pain: estimates from the Global Burden of Disease 2010 study. Annals of the Rheumatic Diseases, 73(6), 968–974.

7. Roger Chou, Amir Qaseem, Vincenza Snow, Donald Casey, J.Thomas Cross, Jr, Paul Shekelle, and Douglas K. Owens.2007. Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline from the American College of Physicians and the American Pain Society. Volume 147, Number 7.

8. Federico Balagué, Anne F Mannion, Ferran Pellisé, Christine Cedraschi.2012.Non-specific low back pain.Lancet.379: 482–491.

9. National Institute for Health and Care Excellence. (2020). Low back pain and sciatica in over 16s: Assessment and management (NICE Guideline N0.59).

10. American Physical Therapy Association. (2021). Clinical practice guideline: Interventions for the management of acute and chronic low back pain.