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ACUPUNCTURE FOR COMBATING DELIVERY PAINS IN PRIMIGRAVIDA AND MULTIGRAVIDA WOMEN – A CRITICAL COMPREHENSIVE REVIEW

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Abstract

The context: Complementary pain treatment techniques may be more popular than pharmaceutical or invasive options since many women choose non-invasive ways to deal with labour pain. The purpose of this study was to compile the available data about the efficacy of acupuncture in alleviating labour pain. Finding out how well acupuncture works as a pain reliever during labour is the goal of this study. **Approach:** In order to compile this extensive evaluation, we explored through several databases as well as the lists of references of the research that were considered. Randomised controlled studies (RCTs) of acupuncture including needle insertion for pain during delivery, comparing acupuncture with placebo, no medication or other non-pharmacological means of pain management in childbirth, were included. Regardless of the number of pregnancies (i.e. nulliparous or multiparous) or whether the labour was natural or artificially instigated, we included all women. Within the framework of the research design, we also assessed the quality of the evidences. **The results:** The randomized controlled trials (RCTs) that were part of already published meta-analyses had different designs, research goals, treatment regimens, and outcome metrics, and they produced mixed findings. In the analysis for systematic review of acupuncture for labour, it may not be suitable to combine these with the assumption of a general conclusion about effectiveness. Additional research is necessary to confirm the positive effects of acupuncture during labour. **Conclusion:** Acupuncture shows promise in reducing labour discomfort and length, according to moderate evidence. Nonetheless, these results must be confirmed by high-quality research.

Keywords: acupuncture, labour pain, primigravida, multigravida

Introduction

The process of childbirth is a multifaceted cultural, social, and physiological phenomenon, and data indicates that acupuncture may be efficacious in alleviating pain during labour. The pain encountered during labour is influenced by several physiological and psychological variables, and when labour progresses properly, it does not indicate an aberrant pathological condition [1]. Perceptions of the intensity of pain during labour vary, and pain management methods primarily aim to assist women in coping with labour pain and alleviating discomfort. The objective of pharmaceutical therapies for pain relief during labour is to alleviate pain, whereas non-pharmacological approaches attempt to assist in pain management, though their purposes and goals may differ depending on the therapy provided [2].

In the last decade, there has been a notable increase in the usage of pharmaceutical analgesia during labour. Evaluations of maternity services highlight the increasing prevalence of

advanced medical care and interventions during normal childbirth, despite a noted stabilization or minor reduction in the advantages these procedures provide for mother and new-born outcomes [3]. These procedures may also initiate a 'cascade' of actions throughout the process of giving birth. Numerous practitioners have emphasized the necessity of enhancing natural births by minimizing interventions such as induction, caesarean sections, and pharmacological analgesia, while augmenting birth options and broadening continuity of care models, alongside providing increased knowledge and assistance to improve effects for mothers and infants. Increased technology management of labour has resulted in women experiencing less autonomy, reduced control, limited decision-making ability, poorer consent capabilities, as well as expressed discontent and insufficient information about physiological methods to assist normal labour. These are critical elements of labour and delivery, consider when assessing the results of therapeutic treatments [4,5].

Complementary medicine (CM) and its treatments are becoming popular in India, especially among pregnant women. Evidence indicates that acupuncture may effectively manage pain during labour and delivery, potentially decreasing the incidence of medical interventions and the related morbidity along with mortality recorded in assessments of maternity care, both in India and globally [6,7].

The scientific research for acupuncture has concentrated on evaluating the efficacy and effectiveness of these therapies in pain alleviation, pain management, including studies investigating its supporting function for women undergoing labour. In the last decade, many systematic reviews on acupuncture for pain treatment and management during labour and childbirth have been published. Numerous studies included in these assessments were structured to tackle the research inquiries using placebo or sham controls to isolate the 'active component' and are centred on reductionist biological assumptions [8-11]. These trial designs have predominated acupuncture research so far and have produced intriguing and pertinent findings. The emphasis on certain features of acupuncture intervention, including the use of restricted outcome measures, the employment of sham or minimal acupuncture as controls, and the absence of patient-centred outcomes, has led to study designs that may fail to include the wider impacts of acupuncture. These extensive effects illustrate acupuncture as a multifaceted intervention, including the care setting. The broader effects within maternity care may encompass the supportive function of acupuncture during labour and delivery, dedicated time and physical contact from partners and midwives, alterations in medication requirements, variations in relaxation or energy levels, shifts in perceptions regarding the advantages of natural labour, selection of birth positions, and sentiments of participation in decision-making, autonomy, and control. This may signify the concept of acupuncture as a 'comprehensive system of medicine.' Neglecting these treatment elements may result in an undervaluation of the therapy's efficacy and utility in clinical practice [12].

As of 2017, the National Guideline Clearinghouse (NGC) had 49 clinical practice guidelines that included recommendations for acupuncture, with 39 specifically endorsing its use for painful illnesses. Preliminary research suggested its possible analgesic impact during labour [13]. A comprehensive evaluation published in 2011 indicated that acupuncture may alleviate pain, decrease drug use, and enhance comfort with pain treatment [8]. Two systematic studies published in 2014 and 2015 yielded contradictory findings about the effectiveness of

acupuncture for labour pain [14,15]. Subsequently, many additional randomized controlled studies (RCTs) examining acupuncture for labour pain have lately been published, while the revised findings may inform clinical practice and enhance patient outcomes. This research thoroughly analysed existing data and assessed the analgesic efficacy of acupuncture for pain during labour [16].

This research aims to analyse contemporary data from systematic reviews on the efficacy of acupuncture in pain management during labour and childbirth, as well as to assess the methodological and therapeutic frameworks used in this evidence. It is essential to emphasize the distinct clinical inquiries, methodologies, and outcome metrics of the numerous studies included in this analysis. It is also important to analyse how these disparities have led to opposing suggestions.

Procedure Followed

Comprehensive reviews provide a framework to evaluate, aggregate, and synthesize data from separate investigations. These evaluations are essential texts that provide a comprehensive picture for policymakers and healthcare decision-makers. In instances when many reviews of a subject exist and their results or conclusions may differ, it is essential to compare and contrast the methodologies and findings of these reviews to determine the most coherent evidence available. A search of the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, PubMed, ClinicalTrials.gov, and the WHO International Clinical Trials Registry Platform (ICTRP) was conducted in the first quarter of 2022. The keywords employed included 'CAM,' 'alternative medicine,' 'complementary medicine,' 'complementary therapies,' 'traditional medicine,' 'Chinese Medicine,' 'Traditional Chinese Medicine,' 'acupuncture,' cross-referenced with 'childbirth,' 'birth,' 'labour,' and 'delivery,' and restricted to systematic reviews. Reviews were analysed about the therapeutic use of acupuncture in maternity care [17].

These studies were evaluated on the basis of the following features:

- The study inquiry pertains to distinguishing between pain alleviation and pain management during labour.
- The investigations include individuals categorized as primiparous, multiparous, or of mixed parity.
- Treatment modalities used include manual acupuncture, electro-acupuncture, auricular acupuncture.
- Employed treatment modalities include mostly individualized, standardized, or semi-standardized acupuncture.
- Assessing the efficacy of the research based on the use of control group, which may include placebo, sham acupuncture, no therapy, alternative pharmaceutical analgesia, or standard care.
- The primary outcome measures included were Visual Analogue Scale (VAS) pain ratings, time intervals, utilization of pharmaceutical pain treatment, satisfaction scores, and duration of labour.
- Methodology for data analysis and studies included and consolidated outcomes

Efficacy and effectiveness of study

Reviews were analysed explicitly to see whether they aimed to address concerns of efficacy or effectiveness. The design of these trials is contingent upon the clinical or research topic posed; yet, the terminology is sometimes used interchangeably and often misinterpreted. Efficacy studies are intended to demonstrate the degree to which a particular therapy or intervention component is successful under optimal clinical conditions with carefully chosen patient groups. The intervention is often contrasted with a placebo, including sham or little acupuncture [18]. Conversely, efficacy studies aim to clarify the impact of the treatment when administered to the broad patient population in standard clinical settings. These studies often use pragmatic designs, whereby the treatment is often an adjunct to standard care and is compared to standard care alone.

Outcomes compiled

Previous research on acupuncture for labour pain

In previous years, many comprehensive systematic reviews evaluating use of acupuncture for labour pain have been published. This comprises a 2011 Cochrane review by Smith et al. (nine acupuncture trials) [8], a 2010 systematic review by Cho et al. (ten acupuncture trials) [9], a 2021 study by Chen et al. (thirteen trials), and another 2020 study by Smith et al. (twenty-eight trials) [19, 20]. The trials included vary in their research goals, study designs, and outcome measures, making comparisons between them challenging. The findings of the review by Cho et al., which concentrated on pain intensity (efficacy), differ from those of Smith et al., who emphasized pain management (effectiveness). Chen et al. examined the effects on labour pain and duration, while Smith et al., in their revised review, regarded pain management as a measurement parameter. Cho et al. determined that the evidence doesn't agree with acupuncture for pain relief during labour, whilst Chen et al. and Smith et al. suggested that acupuncture may contribute to pain reduction, decreased reliance on pain relief methods, lower caesarean section rates, and improved satisfaction with pain management.

Among the studies included in the Cochrane review, three examined pain management, while six assessed pain severity. The scientists saw a decrease in pain intensity when acupuncture was contrasted with no therapy, but found no changes when comparing acupuncture to sham or normal care. Acupuncture was associated with a decreased reliance on pharmaceutical analgesia relative to normal therapy. Cho et al.'s evaluation included the same three experiments about managing pain; however, the trials assessing pain intensity were not completely congruent [9]. The authors observed a decrease in pain intensity when acupuncture was contrasted with no therapy and when electro-acupuncture (EA) was compared to sham EA. A reduced use of pharmaceutical analgesia was seen when acupuncture was compared to usual treatment.

Although the two studies yielded comparable data, their conclusions varied, perhaps due to the distinct emphasis on efficacy vs effectiveness in the evaluations, as well as variations in study objectives, design, and results evaluations for the included trials. The research studies included in both of the evaluations used various forms of controls. The modalities included conventional analgesia, sham needling at non-acupuncture sites, transcutaneous electrical nerve stimulation (TENS), sterile water injections, local massage, epidural analgesia, and also breathing

techniques. In other investigations, no pain alleviation served as the control, while two of these research used placebo electro-acupuncture with non-penetrating needles at Sp6 as an additional control group.

Qu and Zhou authored the only research using electro-acupuncture published in English that was included in the reviews [21]. Subsequently, two further investigations by Ma et al. and MacKenzie et al. were published [22,23]. Qu and Zhou discovered that women undergoing electro-acupuncture at a modulating frequency of 2-100 Hz had reduced labour pain intensity compared to those getting no analgesia. Ma et al. discovered that women undergoing electro-acupuncture at a modulating frequency of 4-20 Hz had reduced pain levels compared to those getting normal therapy. MacKenzie et al. conducted the only research using low frequency exclusively (2 Hz), and moreover, they exclusively included women undergoing induced labour. No differences were seen among acupuncture, sham treatment, or normal care for the use of epidural analgesia.

Acupuncture for labour pain, clinical considerations

Most prior experiments included manual stimulation of needles inserted at localized sites inside muscle tissue corresponding to the somatic innervations of the cervix and uterus, as well as distal regions in the head, hands, and feet. The quantity of accessible acupuncture sites ranged from a few to over 40; however, the precise number of needles used was seldom documented. The duration from needle insertion to withdrawal varied, spanning from a few minutes to many hours.

The investigations using EA used either modulating frequency or low-frequency stimulation. Most used distal points with 2 to 8 needles. Qu and Zhou used a frequency of 2-100 Hz at two bilateral distal sites, Ma et al. utilized a frequency of 4-20 Hz at one bilateral distal point, while MacKenzie et al. applied 2 Hz stimulation at four bilateral distal points [21-23]. None of these studies used local sites within the same somatic innervations as the cervix and uterus, which supports the gate control idea. Nevertheless, some of their distal sites were situated inside this innervation region.

Among the non-pharmacological treatments for pain management during delivery in other countries, immersion in water was the most prevalent, used in 8% of all births (13% for nulliparous women and 5% for multiparous women). Acupuncture and TENS were used in 5% of all births (acupuncture: nullipara 8%, multipara 3%; TENS: nullipara 7%, multipara 3%). Sterile water injections were used in 4% of all births (6% in nulliparous women, 2% in multiparous women). Evidence suggests that water immersion with acupuncture may enhance the management of labour-related pain and comfort from pain alleviation [10,11]. There is inadequate evidence for both TENS and sterile water injections. Nonetheless, all non-pharmacological approaches have minimal side effects and seem to be safe for both mothers and babies. Acupuncture is accessible for several ailments, including ante-natal hyperemesis and pelvic girdle pain, during labour for retained placenta and for pain relief and relaxation, and post-delivery for post-labour pain, milk stasis, and urine retention.

In the context of managing normal labour and labour pain, with pharmaceutical analgesia rate as the result of interest, the reduction of this rate in the acupuncture group may represent the

primary benefit. In addition to serving as an objective assessment of pain alleviation, using acupuncture to aid women in managing labour pain, therefore circumventing the possible adverse effects of pharmaceutical treatments, may prove to be very advantageous in clinical practice. Crucially, when pain ratings are reported as the primary outcome, and the control group receives conventional analgesia, a non-significant or equivalent score between the two groups may indicate the comparability of acupuncture to conventional analgesia in alleviating labour pain. Huntley and his group reported that acupuncture provides pain alleviation comparable to conventional analgesia, indicating technique equivalence and resulting in fewer epidural treatments [10].

Conclusion

Women constitute major users of CM and persist in its usage throughout pregnancy and labour. Findings from all four of the systematic evaluations of acupuncture for labour indicate that acupuncture approaches have both point-specific benefits and broader holistic efficacy in alleviating pain during labour and childbirth, with outcomes varying significantly.

Research on acupuncture so far has been focused on effectiveness to investigate specific elements of the acupuncture system. This methodology has faced criticism and disagreement because of its emphasis on certain therapy components, limited outcome measures, use of active controls, absence of patient-centred outcomes, and study methods tailored for the assessment of pharmaceutical goods. The overlay of the reductionist framework characteristic of the biological model, intended to assess pharmaceutical therapy, fails to consider the intricate care models or 'whole systems of medicine' that characterize complementary medicine therapies. These study methodologies may hide the complete efficacy of the medicine being examined.

The application of acupuncture in maternity care may offer numerous advantages to the parturient woman, including: options for analgesic techniques; the ability to ambulate and adopt upright birthing positions; concentrated attention and tactile support from the partner and midwife; self-management through acupressure, with the birth partner instructed in point application; enhanced autonomy and control; increased satisfaction; and a secure, non-pharmacological adjunct to conventional medical practices. All of these factors may enhance the practical implementation of acupuncture, while also suggesting the need of educated choice and decision-making for women in labour.

Both efficacy and effectiveness studies may provide findings pertaining to distinct main inquiries or outcomes of interest. It is essential to align the treatment intent with the desired outcomes and to design studies that may effectively provide this information, analysing them individually within pooled data. Outcomes of interest should include larger woman-centred metrics. Acupuncture may serve as beneficial adjunct treatments for women to manage labour pain, perhaps aiding in the avoidance of needless chemical analgesics and minimizing unwanted effects.

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