Cochrane for Clinicians

Putting Evidence into Practice

Complementary and Integrative Treatments for Pain Management in Labor

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Clinical Question

Are complementary and integrative treatments such as massage, thermal interventions, and relaxation techniques effective and safe for managing pain during labor?

Evidence-Based Answer

There is evidence that all of the studied interventions have some benefit in labor, but the evidence is of low to very low quality. Massage, thermal interventions (warm and cold packs), relaxation techniques, yoga, and music reduce pain during latent labor, but not during active labor.[1,2] Thermal interventions and yoga shorten the duration of labor, with a mean difference (MD) of 66 minutes (95% confidence interval [CI], 40 to 92 minutes) for warm packs, 78 minutes (95% CI, 37 to 119 minutes) for cold or intermittent warm and cold packs, and 140 minutes (95% CI, 27 to 252 minutes) for yoga vs. usual care.[1,2] Yoga improves satisfaction with pain relief (MD = –1.3 on a 10-point visual analog scale [VAS]; 95% CI, –0.5 to –1.7), and relaxation techniques increase the likelihood that patients will report high satisfaction with pain control (number needed to treat [NNT] = 3; 95% CI, 1 to 200).[2] Massage also improved satisfaction with the labor experience (NNT = 3; 95% CI, 2 to 40).[1] (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)

These are summaries of reviews from the Cochrane Library.

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CME **This clinical content** conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 157.

Practice Pointers

Complementary therapies are popular for pain management in labor. In one study, 70% of patients reported using a nonmedical therapy for labor pain, with 50% of patients using at least two.[3] Two recent Cochrane analyses were produced to discern whether these pain management techniques are safe and effective for use in labor.

The first Cochrane review described massage and manual therapies for pain management in labor, evaluating 10 trials involving 1,055 women.[1] Trials were performed in various countries, with more than half conducted in Iran. Interventions were compared with usual care in all studies. Low-quality evidence from all 10 trials showed that massage moderately reduced pain during latent labor (NNT = 2; 95% CI, 1 to 3). Massage also mildly improved patients' sense of control in labor and satisfaction with childbirth (NNT = 3; 95% CI, 2 to 40). Very low-quality evidence from a single trial showed that thermal interventions with warm or cold packs reduced pain in latent labor (MD = –1.4 points on a 10-point VAS; 95% CI, –2.2 to –0.6). Thermal intervention also reduced labor duration by 66 minutes (95% CI, 40 to 92 minutes) for warm packs and 78 minutes (95% CI, 37 to 119 minutes) for cold or intermittent warm and cold packs. The primary quality limitation in all studies was due to lack of blinding and small trial sizes, which led to high heterogeneity in results. These therapies did not increase adverse outcomes compared with usual care.

Another recent Cochrane review studied relaxation techniques for pain management in labor, evaluating 15 studies involving 1,731 women.[2] Instruction on relaxation mildly reduced latent labor pain (MD = –1.3 on VAS; 95% CI, –1.7 to –0.5) and led to higher satisfaction with pain relief (NNT = 3; 95% CI, 1 to 200). Yoga mildly reduced latent labor pain (MD = –0.6 on VAS; 95% CI, –1.2 to –0.1), and slightly improved satisfaction with pain relief (MD = 0.8 on VAS; 95% CI, 0.2 to 1.4) and childbirth (MD = 6 on maternal comfort scale with a range of 35 to 210; 95% CI, 0.3 to 12). Two small trials demonstrated that

SUMMARY TABLE: IMPORTANT EFFECTS OF COMPLEMENTARY AND INTEGRATIVE TREATMENTS ON LABOR OUTCOMES

Outcomes	Intervention	Difference (vs. usual care if not specified)	Number of studies (number of participants)	Quality of evidence
Pain relief	Massage	NNT = 2 (95% CI, 2 or 3) to decrease pain intensity during latent labor	6 (N = 362)	Low
Satisfaction with pain relief	Relaxation methods	NNT = 3 (95% CI, 1 to 200) to achieve high satisfaction with pain relief	1 (n = 40)	Very low
Satisfaction with labor	Massage	NNT = 3 (95% CI, 2 to 40) to achieve high satisfaction with childbirth	1 (n = 60)	Low
Length of labor	Warm packs	MD = 66 minutes shorter (95% CI, 40 to 92 minutes shorter)	2 (N = 128)	Very low
	Cold packs / intermittent warm and cold packs	MD = 78 minutes shorter (95% CI, 37 to 119 minutes shorter)	1 (n = 96)	Very low
	Yoga vs. usual care	MD = 140 minutes shorter (95% CI, 27 to 252 minutes shorter)	1 (n = 66)	Low
	Yoga vs. supine position	MD = 191 minutes shorter (95% CI, 139 to 244 minutes shorter)	1 (n = 83)	Low

CI = confidence interval; MD = mean difference; NNT = number needed to treat.

yoga also reduced the duration of labor by 140 minutes (95% CI, 27 to 252 minutes) when compared with usual care in one trial and by 191 minutes (95% CI, 139 to 244 minutes) when compared with supine positioning in another trial.

Mindfulness increased patients' sense of control during labor (MD = 31 on the Childbirth Self-Efficacy Inventory with a range of 0 to 150; 95% CI, 2 to 61) based on a small trial with very low-quality evidence. Music slightly reduced latent labor pain compared with usual care based on two trials (MD = −0.7 on 10-point VAS; 95% CI, −1.0 to −0.5) and during transition to active labor based on one trial (MD = −0.7 on 10-point VAS; 95% CI, −0.9 to −0.5). All evidence was low to very low quality, based primarily on lack of blinding and small sample sizes leading to high heterogeneity of results. There was no increase in adverse outcomes in patients treated with relaxation techniques compared with usual care.

Previous Cochrane reviews have reported on the use of hypnosis, acupuncture, and acupressure in labor.[4,5] These reviews also showed inconsistent evidence of benefit because of small studies limited by lack of blinding. Hypnosis reduces the use of pain medications in labor but does not affect reported pain or satisfaction.[4] Acupuncture reduces pain compared with no intervention, but not compared with usual care.[5] Acupressure mildly reduces pain compared with placebo and reduces labor duration.[6]

Guidelines from the National Institute for Health and Care Excellence recommend supporting a pregnant woman's choice in using relaxation or massage techniques.[6] The American College of Obstetricians and Gynecologists recommends consideration of nonpharmacologic techniques to optimize pain control or coping, including massage, relaxation techniques, acupuncture, and hypnosis.[7]

The practice recommendations in this activity are available at http://www.cochrane.org/CD009290 and at http://www.cochrane.org/CD009514.

Editor's Note: The numbers needed to treat reported in this Cochrane for Clinicians were calculated by the authors based on raw data provided in the original Cochrane review.

The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, the Uniformed Services University of the Health Sciences, the Department of Defense, or the U.S. government.

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Oral Immunotherapy for Egg Allergy

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Clinical Question

Is oral immunotherapy an effective method for desensitizing children with egg allergy?

Evidence-Based Answer

Providing daily, steadily increasing doses of egg protein over an extended period of time effectively diminishes the immunoglobulin E (IgE)-mediated allergic response among children with egg allergy. Continued egg consumption maintains this desensitizing effect, with a return of the allergic response in the case of egg avoidance. However, this benefit is not achieved without risk; 75% of children in intervention groups experienced at least one adverse effect, with 8.4% of children experiencing a serious adverse effect requiring medication.[1] (Strength of Recommendation: B, based on small, low-quality randomized controlled trials.)

Practice Pointers

After cow's milk, eggs are the second most common food allergy among infants and small children, with an estimated prevalence of 0.5% to 2.5%.[2] Although some children will remain allergic throughout adulthood, approximately 70% of young children with egg allergy are able to tolerate baked egg with minimal to no symptoms, and most will outgrow the allergy entirely by adulthood.[1] The diagnosis of egg allergy is supported by any combination of allergic reactions occurring within minutes to hours of ingesting eggs, especially if occurring on more than one occasion. Such reactions may include urticaria, periorbital edema, nasal congestion, dyspnea, wheezing, bronchospasm, nausea, emesis, diarrhea, and angioedema of the perioral region.[3] The Expert Panel of the National Institute of Allergy and Infectious Diseases has concluded that insufficient evidence exists to recommend routine food allergy testing before the introduction of highly allergenic foods.[3] Although skin prick and serum IgE tests have relatively low positive predictive value, they are adequate in the setting of symptoms representative of an allergic reaction. Still, oral food challenge remains the preferred method of diagnosing an egg allergy.

This Cochrane review is a meta-analysis of 10 randomized controlled trials with 439 participants one to 18 years of age.[1] Immunotherapy protocols varied in each study, but none used sublingual immunotherapy. Seven studies used egg avoidance diets as the control intervention and three used placebo. Outcomes included tolerance to an increased amount of ingested egg while receiving allergen-specific oral immunotherapy and a complete recovery from egg allergy after completion of an immunotherapy regimen. In addition, quality of life and cost-effectiveness were considered. Generally, the protocols aimed to induce a state of tolerance to the allergen through regular administration of small amounts of egg protein over time. Doses began between 1 mg and 75 mg of egg white powder and were slowly increased to 10 g of egg white powder, the equivalent of one whole egg.[1]

Within the immunotherapy group, 82% of children receiving oral immunotherapy increased the amount of egg they could tolerate vs. 10% of the control group (relative risk [RR] = 7.48; 95% confidence interval [CI], 4.91 to 11.38). Although higher amounts of egg allergen were tolerated across the immunotherapy participants, the studies were small and the quality of evidence was low. In longer-term follow-up, 50% of children in the immunotherapy group achieved sustained unresponsiveness by the fourth year.[4] Importantly, 75% of children receiving immunotherapy experienced mild-to-severe adverse effects (including 21 children who required treatment for serious reactions) compared with 6.8% of those in the control group (RR = 8.35; 95% CI, 5.31 to 13.12). Overall, there was inconsistent rigor among the methodologies, and the number of enrolled children was low. Additionally, a high risk of bias was identified in eight of the 10 trials.

Immunotherapy with egg proteins effectively builds tolerance over time and in at least one-half of those who participate, it may lead to complete resolution of egg allergy. However, most patients will also experience allergy-related adverse effects, with a small percentage of those reactions becoming life-threatening. Importantly, guidelines from the National Institute of Allergy and Infectious Diseases do not recommend specific immunotherapy to treat IgE-mediated food allergy, maintaining that allergen avoidance is currently the safest strategy for managing egg allergy.

The practice recommendations in this activity are available at http://www.cochrane.org/CD010638.

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