Cutaneous lumbosacral injections of sterile water were more effective than "placebo" injections for relieving first-stage labor pain

Mårtensson L, Wallin G. **Labour pain treated with cutaneous injections of sterile water: a randomised controlled trial.** Br J Obstet Gynaecol. 1999 Jul;106:633-7.

Question

In women who are in the first stage of labor, are cutaneous injections of sterile water effective for relieving low-back pain?

Design

Randomized (allocation concealed*), blinded (outcome assessors)*, placebo-controlled trial with 90-minute follow-up after treatment.

Setting

A labor ward with approximately 3000 deliveries/y in a suburb of Gothenburg, Sweden.

Patients

99 pregnant women (mean age 29 y, mean gestation 40 wk) who were admitted to the labor ward, were in the first stage of labor, required pain relief for severe low-back pain, and had not received either opioid analgesia in the previous 3 hours or an epidural blockade. 98% and 87% of women were studied at 10 and 45 minutes, respectively, after treatment.

Intervention

Women were allocated to 4 intracutaneous injections of 0.1 mL sterile water (n = 33), 4 subcutaneous injections of 0.5 mL sterile water (n = 33), or 4 subcutaneous injections of 0.1 mL isotonic saline (placebo). Injections were given in the lumbosacral region (Michaelis rhomboid) during a contraction while the woman breathed nitrous oxide and oxygen.

Main outcome measure

Labor pain was measured with a 10-cm visual analog scale (VAS) (0 cm = no pain; 10 cm = worst conceivable pain) at 10, 45, and 90 minutes after treatment.

Main results

After treatment, labor pain was reduced more in the 2 treatment groups than in the placebo group at 10 minutes (median VAS score decrease 5.0 cm for intracutaneous sterile water and 4.5 cm for subcutaneous sterile water vs 1.7 cm for placebo, P = 0.002) and 45 minutes (median VAS score decrease 4.9 cm for intracutaneous sterile water and 4.0 cm for subcutaneous sterile water vs 1.0 cm for placebo, P = 0.006). At 90 minutes, < 80% of women were included in the analysis. More women in the treatment groups than in the placebo group had pain score reductions ≥ 4 cm at 10 minutes (P = 0.005) and 45 minutes (P = 0.027) (Table).

Conclusion

In women who were in the first stage of labor, both intra- and subcutaneous injections of sterile water were effective for relieving first-stage back pain for 45 minutes.

Source of funding: Bohus County Health Authority.

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*See Glossary.

Intracutaneous (IC) and subcutaneous (SC) injections of sterile water vs placebo for relieving labor pain (VAS score reduction ≥ 4.0 cm)†

Comparisons	Sterile water	Placebo	RBI (95% CI)	NNT (CI)
IC vs placebo at 10 min	63%	25%	150% (35 to 393)	3 (2 to 8)
SC vs placebo at 10 min	58%	25%	130% (23 to 358)	4 (2 to 12)
IC vs placebo at 45 min	59%	25%	134% (21 to 387)	3 (2 to 13)
SC vs placebo at 45 min	52%	25%	107% (4 to 337)	4 (3 to 82)

†VAS = visual analog scale. Other abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article.

Commentary

Nearly all women experience pain during labor. The response to pain during childbirth is a complex, personal, perceptual experience, modified by physiologic and psychological mechanisms that may arise naturally from an endogenous source or an external stimulus. The randomized, placebo-controlled trial by Mårtensson and Wallin showed that giving intracutaneous and subcutaneous injections of sterile water in the lumbosacral region may help reduce low-back pain during the first stage of labor.

This intervention can be used in most societies, but the risk for needlestick injuries and spread of viral diseases (e.g., HIV and hepatitis B virus) could be increased. Alternative pain-relief methods that are effective, inexpensive, and easy to give with few side effects should be available.

Although the study sample is small and the loss of data could have influenced the conclusions, this intervention may provide a temporary pain-stabilizing effect. Further evidence is needed before concluding that intracutaneous and subcutaneous injections of sterile water substantially reduce low-back pain during the first stage of labor. However, because no harmful effects and few side effects (i.e., pain during injection and increased risk for transmission of HIV and hepatitis B virus to the caregiver) occur, this intervention could be among the alternatives offered to women for pain relief during labor.

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