Meptazinol in Labour

1. Parenteral opioids for maternal pain management in labour

**Author(s):** Smith L.A.; Burns E.; Cuthbert A.

**Source:** Cochrane Database of Systematic Reviews; Jun 2018; vol. 2018 (no. 6)

**Publication Date:** Jun 2018

**Publication Type(s):** Review

**PubMedID:** 29870574

Available at Cochrane Database of Systematic Reviews - from Cochrane Collaboration (Wiley)

**Abstract:** Background: Parenteral opioids (intramuscular and intravenous drugs including patient-controlled analgesia) are used for pain relief in labour in many countries throughout the world. This review is an update of a review first published in 2010. Objectives: To assess the effectiveness, safety and acceptability to women of different types, doses and modes of administration of parenteral opioid analgesia in labour. A second objective is to assess the effects of opioids in labour on the baby in terms of safety, condition at birth and early feeding. Search methods: We searched Cochrane Pregnancy and Childbirth’s Trials Register, ClinicalTrials.gov, the WHO International Clinical Trials Registry Platform (ICTRP) (11 May 2017) and reference lists of retrieved studies. Selection criteria: We included randomised controlled trials examining the use of intramuscular or intravenous opioids (including patient-controlled analgesia) for women in labour. Cluster-randomised trials were also eligible for inclusion, although none were identified. We did not include quasi-randomised trials. We looked at studies comparing an opioid with another opioid, placebo, no treatment, other non-pharmacological interventions (transcutaneous electrical nerve stimulation (TENS)) or inhaled analgesia. Data collection and analysis: Two review authors independently assessed trials for inclusion and risk of bias, extracted data and checked them for accuracy. We assessed the quality of each evidence synthesis using the GRADE approach. Main results: We included 70 studies that compared an opioid with placebo or no treatment, another opioid administered intramuscularly or intravenously or compared with TENS applied to the back. Sixty-one studies involving more than 8000 women contributed data to the review and these studies reported on 34 different comparisons; for many comparisons and outcomes only one study contributed data. All of the studies were conducted in hospital settings, on healthy women with uncomplicated pregnancies at 37 to 42 weeks’ gestation. We excluded studies focusing on women with pre-eclampsia or pre-existing conditions or with a compromised fetus. Overall, the evidence was graded as low- or very low-quality regarding the analgesic effect of opioids and satisfaction with analgesia; evidence was downgraded because of study design limitations, and many of the studies were underpowered to detect differences between groups and so effect estimates were imprecise. Due to the large number of different comparisons, it was not possible to present GRADE findings for every comparison. For the comparison of intramuscular pethidine (50 mg/100 mg) versus placebo, no clear differences were found in maternal satisfaction with analgesia measured during labour (number of women satisfied or very satisfied after 30 minutes: 50 women; 1 trial; risk ratio (RR) 7.00, 95% confidence
interval (CI) 0.38 to 128.87, very low-quality evidence), or number of women requesting an epidural (50 women; 1 trial; RR 0.50, 95% CI 0.14 to 1.78; very low-quality evidence). Pain scores (reduction in visual analogue scale (VAS) score of at least 40 mm: 50 women; 1 trial; RR 25, 95% CI 1.56 to 400, low-quality evidence) and pain measured in labour (women reporting pain relief to be "good" or "fair" within one hour of administration: 116 women; 1 trial; RR 1.75, 95% CI 1.24 to 2.47, low-quality evidence) were both reduced in the pethidine group, and fewer women requested any additional analgesia (50 women; 1 trial; RR 0.71, 95% CI 0.54 to 0.94, low-quality evidence). There was limited information on adverse effects and harm to women and babies. There were few results that clearly showed that one opioid was more effective than another. Overall, findings indicated that parenteral opioids provided some pain relief and moderate satisfaction with analgesia in labour. Opioid drugs were associated with maternal nausea, vomiting and drowsiness, although different opioid drugs were associated with different adverse effects. There was no clear evidence of adverse effects of opioids on the newborn. We did not have sufficient evidence to assess which opioid drug provided the best pain relief with the least adverse effects. Authors' conclusions: Though most evidence is of low- or very-low quality, for healthy women with an uncomplicated pregnancy who are giving birth at 37 to 42 weeks, parenteral opioids appear to provide some relief from pain in labour but are associated with drowsiness, nausea, and vomiting in the woman. Effects on the newborn are unclear. Maternal satisfaction with opioid analgesia was largely unreported. The review needs to be examined alongside related Cochrane reviews. More research is needed to determine which analgesic intervention is most effective, and provides greatest satisfaction to women with acceptable adverse effects for mothers and their newborn. Copyright © 2018 The Cochrane Collaboration.

**Database:** EMBASE

2. Efficacy and Effects of Parenteral Pethidine or Meptazinol and Regional Analgesia for Pain Relief during Delivery. A Comparative Observational Study.

**Author(s):** Singer, J; Jank, A; Amara, S; Stepan, P D H; Kaisers, U; Hoehne, C

**Source:** Geburtshilfe und Frauenheilkunde; Sep 2016; vol. 76 (no. 9); p. 964-971

**Publication Date:** Sep 2016

**Publication Type(s):** Journal Article

**PubMedID:** 27681521

Available at [Geburtshilfe und Frauenheilkunde](https://doi.org/10.1055/s-0036-1587768) from PubMed Central

**Abstract:** Background: Peripartum anesthesia may consist of parenteral opioids and/or regional analgesia. There is only limited data in the literature comparing both methods in daily obstetric practice. This observational study investigated the opioids pethidine and meptazinol as well as regional analgesics with regard to their administration, efficacy, side effects and subjective maternal satisfaction with therapy. The rates of secondary regional analgesia administration after administration of the respective opioid served as a means of evaluating treatment. Methods: This study collected data on pain management during vaginal delivery in a German university hospital over a twelve month period. Severity of pain was measured intrapartum using a numerical rating scale. Maternal, neonatal and delivery-related data were obtained postpartum from the clinical records and from the mothers using a questionnaire. Results: The study is based on data obtained from 449 deliveries. Pain relief achieved by the administration of pethidine and meptazinol was similarly low; maternal satisfaction with the respective therapy was high. Meptazinol was usually administered intravenously (83% vs. 6%; p < 0.001), repeatedly (27% vs. 6%; p < 0.001) and closer to the birth (1.9 ± 2.7 h vs. 2.6 ± 2.8 h; p < 0.05) compared to pethidine. Secondary regional analgesia was more common after the administration of pethidine (16% vs. 8%; p < 0.05). Regional analgesia resulted in greater pain relief compared to opioid therapy (78% vs. 24% after 30 min; p < 0.001) and
was associated with longer times to delivery (7.6 ± 2.5 h vs. 5.7 ± 2.5 h; p < 0.001) and higher levels of maternal satisfaction with therapy (6.1 ± 1.2 vs. 4.8 ± 1.6 on a 7-point scale; p < 0.001). Conclusion: In daily clinical practice, meptazinol can be adapted more readily to changes during birth and requires less secondary analgesia. Regional neuraxial analgesia was found to be an efficacious and safe way of managing labor pain.

**Database:** Medline

### 3. Parenteral opioids for labor pain relief: A systematic review

**Author(s):** Bricker L.; Lavender T.

**Source:** American Journal of Obstetrics and Gynecology; 2002; vol. 186 (no. 5)

**Publication Date:** 2002

**Publication Type(s):** Conference Paper

**PubMedID:** 12011876

**Abstract:** Parenteral opioids are commonly used for labor pain relief and have been the subject of research for many years. The objectives of this review were to determine the safety and effectiveness of parenteral opioids in this context. Of 85 trials systematically reviewed, 48 comprising more than 9800 were included, but the number of trials contributing data to individual outcome measures is very limited. Epidural provides better pain relief. However, if women opt for systemic analgesia, no strong preference for any of the opioids can be recommended. Pethidine is the most commonly used opioid worldwide, and although there are considerable doubts about its analgesic effectiveness and concerns about its potential maternal, fetal, and neonatal side effects, it has the virtue of familiarity and low cost. There is as yet no convincing research evidence to show that alternative opioids are better. In view of the large number of women who receive opioids in labor and the paucity of research evidence about the relative effectiveness and side effects of different opioids and opioids compared with other methods (apart from epidural), well-designed and suitably sized trials of pethidine versus the main alternatives that address substantive outcomes for mothers and babies are strongly recommended.

**Database:** EMBASE

### 4. A double blind quantitative study of the effects of meptazinol and pethidine on the fetal heart rate in labour

**Author(s):** Wheble A.M.; Dawes G.S.; Gillmer M.D.G.; Sykes G.S.

**Source:** Journal of Obstetrics and Gynaecology; 1988; vol. 8 (no. 3); p. 248-252

**Publication Date:** 1988

**Abstract:** A double blind controlled trial was carried out to measure the effect of pethidine and meptazinol on the fetal heart rate in labour. Patients who selected epidural or inhalational analgesia were used as controls. The fetal heart rate was analysed numerically, using a microcomputer, for 45-60 min before and after drug administration to allow for fetal behavioural state changes. Controls showed no change in heart rate or its variation over two successive periods of observation. The mean numbers of accelerations (> 10 beats per min and 15 s duration) were reduced by 46 per cent (P < 0.001) with pethidine administration and by 33 per cent (P < 0.05) with meptazinol. The reduction in overall fetal heart rate variation with pethidine was only 20 per cent (P < 0.05); no change was demonstrated with meptazinol. The mean umbilical artery pH at delivery was 7.28 in the meptazinol babies, higher than the mean of 7.22 in the controls (P < 0.05), but no other differences in the blood gas values were found.

**Database:** EMBASE
5. A double-blind study comparing meptazinol and pethidine for pain relief in labour.

**Author(s):** Osler, M  
**Source:** European journal of obstetrics, gynecology, and reproductive biology; Sep 1987; vol. 26 (no. 1); p. 15-18  
**Publication Date:** Sep 1987  
**Publication Type(s):** Comparative Study Controlled Clinical Trial Clinical Trial Journal Article  
**PubMedID:** 3666261  
**Abstract:** A double-blind comparison of meptazinol 100 mg and pethidine 75 mg as analgesics during the first stage of labour was undertaken in 199 patients. Injections were allowed to be repeated at intervals of 2 h to a maximum of three doses. There were only minor differences between the two drugs with regard to pain relief and no differences in the need for supplementary epidural and pudendal blocks and neonatal status and behaviour. It is concluded that meptazinol and pethidine are of equal clinical value as analgesic injections during the first stage of labour.  
**Database:** Medline


**Author(s):** de Boer, F C; Shortland, D; Simpson, R L; Clifford, W A; Catley, D M  
**Source:** British journal of obstetrics and gynaecology; Mar 1987; vol. 94 (no. 3); p. 256-261  
**Publication Date:** Mar 1987  
**Publication Type(s):** Comparative Study Randomized Controlled Trial Clinical Trial Journal Article  
**PubMedID:** 3567124  
**Abstract:** A randomized double-blind study compared the effects of equi-analgesic doses of maternally administered meptazinol (1.5 mg/kg) and pethidine (1.5 mg/kg) on neonatal acid-base status. Heel-prick samples were taken for assessment of acid-base status at 10 and 60 min after delivery. Maternal antenatal history, details of labour and neonatal status at delivery were also recorded. Meptazinol produced less neonatal respiratory depression than pethidine: the mean 10 min acid-base data from 16 infants whose mothers received pethidine were indicative of a respiratory acidosis (pH 7.13, SD 0.08, PCO2, 9.11, SD 2.2 kPa; standard bicarbonate 22.3, SD 3.1 mmol/l). This was not evident in the mean acid-base data from 16 infants whose mothers received meptazinol (pH 7.23, SD 0.07; PCO2 6.83, SD 1.6 kPa; standard bicarbonate 20.9, SD 4.2 mmol/l). The mean pH and PCO2 in the two treatment groups were significantly different (P less than 0.002) at 10 min but not at 60 min after delivery.  
**Database:** Medline
7. Pethidine compared with meptazinol during labour. A prospective randomised double-blind study in 1100 patients.

**Author(s):** Morrison, C E; Dutton, D; Howie, H; Gilmour, H

**Source:** Anaesthesia; Jan 1987; vol. 42 (no. 1); p. 7-14

**Publication Date:** Jan 1987

**Publication Type(s):** Comparative Study Randomized Controlled Trial Clinical Trial Journal Article

**PubMedID:** 3826577

Available at [Anaesthesia](http://example.com) - from Unpaywall

**Abstract:** A randomised double-blind comparison of pethidine and meptazinol used as analgesics in labour was carried out in 1,100 consecutive women who would normally have received intramuscular pethidine. Pain assessments at 30-minute intervals were made independently by patients and midwives. Maternal and neonatal side effects were noted. The babies' requirements for resuscitation and weight changes in the first 5 days were studied. There was no difference in the analgesia provided by the two drugs; the pattern of side effects was similar, but the incidence of vomiting was greater following meptazinol administration. The babies in the two groups were similar with respect to resuscitation received, weight gains or losses and the incidence of clinical neonatal jaundice. The most striking findings were the poor quality of pain relief experienced by both groups following parenteral analgesics and the high incidence of side effects.

**Database:** Medline

8. Comparative study of meptazinol and pethidine for the relief of pain in labour.

**Author(s):** Sheikh, A; Tunstall, M E

**Source:** British journal of obstetrics and gynaecology; Mar 1986; vol. 93 (no. 3); p. 264-269

**Publication Date:** Mar 1986

**Publication Type(s):** Comparative Study Controlled Clinical Trial Clinical Trial Journal Article

**PubMedID:** 3516202

**Abstract:** A double-blind comparison of pethidine and meptazinol in the relief of pain during labour was undertaken in 205 healthy women. The protocol allowed 100 mg of the test drug to be repeated at intervals of 2 h to a maximum of three doses. It was noteworthy that only 29 mothers were given a second dose of narcotic. Every woman receiving one injection of meptazinol complained of moderate to severe pain after 2 h; 97% of those receiving one injection of pethidine were complaining of moderate to severe pain after 2 h. There was no difference between the two drugs with regard to pain relief or in side-effects both in mother and baby.

**Database:** Medline

**Author(s):** Hanretty, K; Whittle, M; McGowan, L

**Source:** Pharmatherapeutica; 1985; vol. 4 (no. 5); p. 319-321

**Publication Date:** 1985

**Publication Type(s):** Journal Article

**PubMedID:** 4070324

**Abstract:** A study was carried out in 40 women undergoing labour to investigate the effect of 100 to 150 mg meptazinol intramuscularly, given alone for the relief of labour pain, on fetal heart rate patterns. Patients were monitored continuously using a fetal scalp electrode attached to a fetal monitor, and fetal heart rate patterns recorded on the cardiotocograph. Traces were interpreted for 2 hours preceding and 2 hours after administration of meptazinol using a 12-point scoring system to quantify the variables of baseline rate and variability and the presence or absence of variable or late decelerations. All babies were born live and, except for 1 delivered by emergency caesarean section under general anaesthesia, none had an Apgar score less than 8 at 1 minute. Analysis of the cardiotocograph traces showed that adverse changes, such as loss of variability, were not significantly associated with the use of meptazinol.

**Database:** Medline

10. Parenteral meptazinol - international clinical experience

**Author(s):** Kay B.

**Source:** Postgraduate Medical Journal; 1985; vol. 61; p. 23-26

**Publication Date:** 1985

**Publication Type(s):** Article

**PubMedID:** 4080662

**Abstract:** Meptazinol is an opioid partial agonist with a potency at a dose of 100 mg similar to that of pethidine, but with a faster onset and shorter duration of action. It is a suitable analgesic for use in the treatment of postoperative, chronic and cancer pain, where its low dependence liability and few prescribing controls are advantageous. Meptazinol has been shown to be effective in the treatment of obstetric pain where it was preferred to pethidine because of its rapid elimination from the neonate. In normal use meptazinol appears to be free from respiratory or cardiovascular depressant actions.

**Database:** EMBASE
11. Routine use of meptazinol in labour

Author(s): Nicholas A.D.G.

Source: Postgraduate Medical Journal; 1983; vol. 59 ; p. 52-53

Publication Date: 1983

Abstract: The analgesia success rate (satisfactory to good analgesia) was good in this study. Pain relief is rapid in onset and lasts 45 to 90 minutes. Meptazinol causes very little dysphoria and has no serious side effects. Hypotension does not seem to occur. The condition of the great majority of babies was excellent. In most of the exceptions there were obstetric complications such as fetal distress, cord around the neck, or prolonged second stage of labour. A low level of meptazinol in breast milk and the short half-life in neonate contribute to the low level of drug depression seen in these cases. The results of this study indicate that meptazinol could be used routinely instead of pethidine and may offer advantages in terms of neonatal safety. (A full paper is in preparation).

Database: EMBASE

12. Preliminary clinical and pharmacokinetic experiences in the newborn when meptazinol is compared with pethidine as an obstetric analgesic

Author(s): Jackson M.B.A.; Robson P.J.

Source: Postgraduate Medical Journal; 1983; vol. 59 ; p. 47-51

Publication Date: 1983

Abstract: Preliminary results on the disposition of meptazinol in the neonate are reviewed. Meptazinol has a half-life of 3.4 hours compared with 22.7 hours for pethidine. In a randomised double blind trial of 100 patients the depressant effects in the newborn of meptazinol and pethidine were compared. There was no difference in the Apgar scores at 1 and 3 minutes. Weight loss and the incidence of neonatal jaundice were less when mothers received meptazinol although these differences did not reach statistical significance. However, the number of infants considered for discharge by the 6th day was significantly greater in the meptazinol groups. In 32 cases transcutaneous monitoring of arterial PO2 was carried out for 30 minutes following delivery. Although the mean PaO2 was similar for meptazinol and pethidine, significant variations in the Pao2 of 2.0 kPa or greater and significant neonatal activity as judged by episodes of crying and movement, were recorded in the meptazinol group. The results of the trial suggest that meptazinol may have less depressant effects on the newborn, and may be preferable to pethidine as an obstetric analgesic.

Database: EMBASE

**Author(s):** Nicholas, A D; Robson, P J

**Source:** British journal of obstetrics and gynaecology; Apr 1982; vol. 89 (no. 4); p. 318-322

**Publication Date:** Apr 1982

**Publication Type(s):** Comparative Study Randomized Controlled Trial Clinical Trial Journal Article

**PubMedID:** 7041955

**Abstract:** The analgesic efficacy and safety of intramuscular meptazinol and pethidine in the first stage of labour were compared in a randomized double-blind trial in 358 patients. Pain relief was measured on a verbal rating scale, maternal side effects were recorded and neonatal outcome assessed in the first 24 h. Pain relief during the first hour after injection was significantly greater in the meptazinol than in the pethidine group at 45 and 60 min. Thereafter, there was no difference between the treatments, and the duration of action was approximately the same. Twenty-eight per cent of patients experienced side effects after meptazinol compared with 35% after pethidine. The commonest were nausea and vomiting with a similar incidence in both groups. Most of the neonatal observations revealed no difference between the two drugs, but significantly more babies whose mothers had received meptazinol had an Apgar score of greater than or equal to 8 at 1 min after birth.

**Database:** Medline


**Author(s):** Nel, C P; Bloch, B; Rush, J M

**Source:** South African medical journal = Suid-Afrikaanse tydskrif vir geneeskunde; Jun 1981; vol. 59 (no. 25); p. 908-910

**Publication Date:** Jun 1981

**Publication Type(s):** Comparative Study Randomized Controlled Trial Clinical Trial Journal Article

**PubMedID:** 7015539

**Abstract:** Meptazinol and pethidine were compared in a double-blind randomized trial with regard to analgesia during the first stage of labour. It was concluded that neither drug is effective for sustained pain relief, and that there is no advantage of one over the other. However, neither drug affected maternal condition as reflected by respiratory rate, pulse rate and blood pressure, nor was any detrimental effect noted on the condition of the newborn infant. The critical reassessment of traditional drugs for analgesia in labour is suggested.

**Database:** Medline
15. Preliminary experience of the use of meptazinol as an obstetric analgesic.

Author(s): Jackson, M B; Robson, P J

Source: British journal of obstetrics and gynaecology; Apr 1980; vol. 87 (no. 4); p. 296-301

Publication Date: Apr 1980

Publication Type(s): Comparative Study Controlled Clinical Trial Clinical Trial Journal Article

PubMedID: 7000166

Abstract: Following an open pilot trial, meptazinol [m(3-ethyl-1-methyl-hexahydro-1-H-azepin-3-yl) phenol hydrochloride] was compared to pethidine in a single-blind study in women requiring analgesia during labour. Meptazinol provided significantly better analgesia than pethidine with similar but possibly less distressing maternal side effects. There were no obvious adverse effects in the newborn.

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