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analgesia for oocyte retrieval

Analgésie dans les ponctions d'ovocytes : évaluation de l'acupuncture

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1. Systematic Reviews and Meta-Analysis

1.1. Kwan 2018

Kwan I, Wang R, Pearce E, Bhattacharya S. Pain relief for women undergoing oocyte retrieval for assisted reproduction. Cochrane Database Syst Rev. 2018. [168827].

Background	Various methods of conscious sedation and analgesia (CSA) have been used during oocyte retrieval for assisted reproduction. The choice of agent has been influenced by the quality of sedation and analgesia and by concerns about possible detrimental effects on reproductive outcomes.
Objectives	To assess the effectiveness and safety of different methods of conscious sedation and analgesia for pain relief and pregnancy outcomes in women undergoing transvaginal oocyte retrieval.
Methods	SEARCH METHODS: We searched; the Cochrane Gynaecology and Fertility specialised register, CENTRAL, MEDLINE, Embase, PsycINFO and CINAHL, and trials registers in November 2017. We also checked references, and contacted study authors for additional studies. SELECTION CRITERIA: We included randomised controlled trials (RCTs) comparing different methods and administrative protocols for conscious sedation and analgesia during oocyte retrieval. DATA COLLECTION AND ANALYSIS: We used standard methodological procedures expected by Cochrane. Our primary outcomes were intraoperative and postoperative pain. Secondary outcomes included clinical pregnancy, patient satisfaction, analgesic side effects, and postoperative complications.

Main results	We included 24 RCTs (3160 women) in five comparisons. We report the main comparisons below. Evidence quality was generally low or very low, mainly owing to poor reporting and imprecision.1. CSA versus other active interventions. All evidence for this comparison was of very low quality. CSA versus CSA plus acupuncture or electroacupuncture Data show more effective intraoperative pain relief on a 0 to 10 visual analogue scale (VAS) with CSA plus acupuncture (mean difference (MD) 1.00, 95% confidence interval (CI) 0.18 to 1.82, 62 women) or electroacupuncture (MD 3.00, 95% CI 2.23 to 3.77, 62 women).Data also show more effective postoperative pain relief (0 to 10 VAS) with CSA plus acupuncture (MD 0.60, 95% CI -0.10 to 1.30, 61 women) or electroacupuncture (MD 2.10, 95% CI 1.40 to 2.80, 61 women).Evidence was insufficient to show whether clinical pregnancy rates were different between CSA and CSA plus acupuncture (odds ratio (OR) 0.61, 95% CI 0.20 to 1.86, 61 women). CSA alone may be associated with fewer pregnancies than CSA plus electroacupuncture (OR 0.22, 95% CI 0.07 to 0.66, 61 women).Evidence was insufficient to show whether rates of vomiting were different between CSA and CSA plus acupuncture (OR 1.64, 95% CI 0.46 to 5.88, 62 women) or electroacupuncture (OR 1.09, 95% CI 0.33 to 3.58, 62 women).Trialists provided no usable data for other outcomes of interest. CSA versus general anaesthesia Postoperative pain relief was greater in the CSA group (0 to 3 Likert: mean difference (MD) 1.9, 95% CI 2.24 to 1.56, one RCT, 50 women).Evidence was insufficient to show whether groups differed in clinical pregnancy rates (OR 1.00, 95% CI 0.43 to 2.35, two RCTs, 108 women, I2 = 0%).Evidence was insufficient to show whether groups differed in rates of vomiting (OR 0.46, 95% CI 0.08 to 2.75, one RCT, 50 women) or airway obstruction (OR 0.14, 95% CI 0.02 to 1.22, one RCT, 58 women). Fewer women needed mask ventilation in the CSA group (OR 0.05, 95% CI 0.01 to 0.20, one RCT, 58 women). Evidence was also insufficient to show whether groups differed in satisfaction rates (OR 0.66, 95% CI 0.11 to 4.04, two RCTs, 108 women, I2 = 34%; very low-quality evidence).Trialists provided no usable data for outcomes of interest.2. CSA + paracervical block (PCB) versus other interventions. CSA + PCB versus electroacupuncture + PCB Intraoperative pain scores were lower in the CSA + PCB group (0 to 10 VAS: MD -0.66, 95% CI -0.93 to -0.39, 781 women, I2 = 76%; low-quality evidence).Evidence was insufficient to show whether groups differed in clinical pregnancy rates (OR 0.96, 95% CI 0.72 to 1.29, 783 women, I2 = 9%; low-quality evidence).Trialists provided no usable data for other outcomes of interest. CSA + PCB versus general anaesthesia Evidence was insufficient to show whether groups differed in postoperative pain scores (0 to 10 VAS: MD 0.49, 95% CI -0.13 to 1.11, 50 women; very low-quality evidence).Evidence was insufficient to show whether groups differed in clinical pregnancy rates (OR 0.70, 95% CI 0.22 to 2.26, 51 women; very low-quality evidence).Trialists provided no usable data for other outcomes of interest. CSA + PCB versus spinal anaesthesia Postoperative pain scores were higher in the CSA + PCB group (0 to 10 VAS: MD 1.02, 95% CI 0.48 to 1.56, 36 women; very low-quality evidence).Evidence was insufficient to show whether groups differed in clinical pregnancy rates (OR 0.93, 95% CI 0.24 to 3.65, 38 women; very low-quality evidence).Trialists provided no usable data for other outcomes of interest. CSA + PCB versus PCB Evidence was insufficient to show whether groups differed in clinical pregnancy rates (OR 0.93, 95% CI 0.44 to 1.96, 150 women; low-quality evidence) or satisfaction (OR 1.63, 95% CI 0.68 to 3.89, 150 women, low-quality evidence). Trialists provided no usable data for other outcomes of interest. CSA + PCB versus CSA only Evidence was insufficient to show whether groups differed in clinical pregnancy rates (OR 0.62, 95% CI 0.28 to 1.36, one RCT, 100 women; very low-quality evidence). Rates of postoperative nausea and vomiting were lower in the CS + PCB group (OR 0.42, 95% CI 0.18 to 0.97, two RCTs, 140 women, I2 = 40%; very low-quality evidence). Trialists provided no usable data for other outcomes of interest.

Authors' conclusions	The evidence does not support one particular method or technique over another in providing effective conscious sedation and analgesia for pain relief during and after oocyte retrieval. Simultaneous use of sedation combined with analgesia such as the opiates, further enhanced by paracervical block or acupuncture techniques, resulted in better pain relief than occurred with one modality alone. Evidence was insufficient to show conclusively whether any of the interventions influenced pregnancy rates. All techniques reviewed were associated with a high degree of patient satisfaction. Women's preferences and resource availability for choice of pain relief merit consideration in practice.

1.2. Kwan 2013

Kwan I, Bhattacharya S, Knox F, Mcneil A. Pain relief for women undergoing oocyte retrieval for assisted reproduction. Cochrane Database Syst Rev. 2013. [171126].

Background	Various methods of conscious sedation and analgesia have been used for pain relief during oocyte recovery in in vitro fertilisation (IVF) and intra-cytoplasmic sperm injection (ICSI) procedures. The choice of agent has also been influenced by the quality of sedation and analgesia as well as by concerns about possible detrimental effects on reproductive outcomes.
Objectives	To assess the effectiveness and safety of different methods of conscious sedation and analgesia on pain relief and pregnancy outcomes in women undergoing transvaginal oocyte retrieval.
Methods	Search methods: We searched the Menstrual Disorders and Subfertility Group Specialised Register, Cochrane Central Register of Controlled Trials (CENTRAL) on The Cochrane Library, MEDLINE, EMBASE, PsycINFO, CINAHL (from their inception to present); the National Research Register and Current Controlled Trials. We searched reference lists of included studies for relevant studies and contacted authors for information on unpublished and ongoing trials. There was no language restriction. The search was updated in July 2012. Selection criteria: Only randomised controlled trials comparing different methods of conscious sedation and analgesia for pain relief during oocyte recovery were included. Data collection and analysis: Quality assessment and data extraction were performed independently by two review authors. Interventions were classified and analysed under broad categories or strategies of sedation and pain relief to compare different methods and administrative protocols of conscious sedation and analgesia. Outcomes were extracted and the data were pooled when appropriate.

Main results	With this update, nine new studies were identified resulting in a total of 21 trials including 2974 women undergoing oocyte retrieval. These trials compared five different categories of conscious sedation and analgesia: 1) conscious sedation and analgesia versus placebo; 2) conscious sedation and analgesia versus other active interventions such as general and **acupuncture anaesthesia**; 3) conscious sedation and analgesia plus paracervical block versus other active interventions such as general, spinal and acupuncture anaesthesia; 4) patient-controlled conscious sedation and analgesia versus physician-administered conscious sedation and analgesia; and 5) conscious sedation and analgesia with different agents or dosage. Evidence was generally of low quality, mainly due to poor reporting of methods, small sample sizes and inconsistency between the trials.Conflicting results were shown for women's experience of pain. **Compared to conscious sedation alone, more effective pain relief was reported when conscious sedation was combined with electro-acupuncture**: intra-operative pain mean difference (MD) on 1 to 10 visual analogue scale (VAS) of 3.00 (95% CI 2.23 to 3.77); post-operative pain MD in VAS units of 2.10 (95% CI 1.40 to 2.80; N = 61, one trial, low quality evidence); or paracervical block (MD not calculable).**The pooled data of four trials showed a significantly lower intra-operative pain score with conscious sedation plus paracervical block than with electro-acupuncture plus paracervical block** (MD on 10-point VAS of -0.66; 95% CI -0.93 to -0.39; N = 781, 4 trials, low quality evidence) with significant statistical heterogeneity (I(2) = 76%). Patient-controlled sedation and analgesia was associated with more intra-operative pain than physician-administered sedation and analgesia (MD on 10-point VAS of 0.60; 95% CI 0.16 to 1.03; N = 379, 4 trials, low quality evidence) with high statistical heterogeneity (I(2) = 83%). Post-operative pain was reported in only nine studies. As different types and dosages of sedative and analgesic agents, as well as administrative protocols and assessment tools, were used in these trials the data should be interpreted with caution.There was no evidence of a significant difference in pregnancy rate in the 12 studies which assessed this outcome, and pooled data of four trials comparing electro-acupuncture combined with paracervical block with conscious sedation and analgesia plus paracervical block showed an odds ratio (OR) of 0.96 (95% CI 0.72 to 1.29; N = 783, 4 trials) for pregnancy. High levels of women's satisfaction were reported for all modalities of conscious sedation and analgesia as assessed in 12 studies. Meta-analysis of all the studies was not attempted due to considerable heterogeneity.For the rest of the trials a descriptive summary of the outcomes was presented.
Authors' conclusions	The evidence from this review of 21 randomised controlled trials **did not support one particular method or technique over another in providing effective conscious sedation and analgesia for pain relief during and after oocyte recovery**. The simultaneous use of more than one method of sedation and pain relief resulted in better pain relief than one modality alone. The various approaches and techniques reviewed appeared to be acceptable and were associated with a high degree of satisfaction in women. As women vary in their experience of pain and in coping strategies, the optimal method may be individualised depending on the preferences of both the women and the clinicians and resource availability.

1.3. Yu 2008 ☆

Yu NG EH et al. The role of acupuncture in the management of subfertility. Fertil Steril 2008;90(1):1-13.[148809].

Purpose	To review systematically the use of acupuncture in the management of subfertility.
Methods	A computer search was performed via several English and Chinese databases to identify journals relevant to the subject.

Results	The positive effect of acupuncture in the treatment of subfertility may be related to the central sympathetic inhibition by the endorphin system, the change in uterine blood flow and motility, and stress reduction. Acupuncture may help restore ovulation in patients with polycystic ovary syndrome, although there are not enough randomized studies - to validate this. There is also no sufficient evidence supporting the role of acupuncture in male subfertility, as most of the studies are uncontrolled case reports or case series in which the sample sizes were small. Despite these deficiencies, **acupuncture can be considered as an effective alternative for pain relief during oocyte retrieval in patients who cannot tolerate side effects of conscious sedation (5 RCTs, 890 patients)** . The pregnancy rate of IVF treatment is significantly increased, especially when acupuncture is administered on the day of embryo transfer.
Conclusion	Although acupuncture has gained increasing popularity in the management of subfertility, its effectiveness has remained controversial.

1.4. Kwan 2005

Kwan I, Bhattacharya S, Knox F, Mcneil A. ConsciouS sedation and analgesia for oocyte retrieval during in vitro fertilisation procedures. Cochrane Database Syst Rev. 2005;CD004829:. [140616].

Background	Various methods of sedation and analgesia have been used for pain relief during oocyte recovery in IVF/ICSI procedures. The choice of agents has also been influenced by quality of analgesia as well as by concern about possible detrimental effects on reproductive outcome.
Objectives	To assess the efficacy of conscious sedation and analgesia versus alternative methods on pregnancy outcomes and pain relief in patients undergoing transvaginal oocyte retrieval.
Methods	SEARCH STRATEGY: We searched the Specialised Register of the Menstrual Disorders and Subfertility Group, The Central Register of Controlled Trials (CENTRAL) , MEDLINE (1966 to present), EMBASE (1980 to present), CINAHL (1982 to present), the National Research Register, and Current Controlled Trials. There was no language restriction. All references in the identified trials and background papers were checked and authors contacted to identify relevant published and unpublished data. SELECTION CRITERIA: Only randomised controlled trials comparing conscious sedation and analgesia versus alternative methods for pain relief during oocyte recovery were included. DATA COLLECTION AND ANALYSIS: Two reviewers independently scanned abstracts of the reports identified by electronic searching to identify relevant papers, extracted data and assessed trial quality. Interventions were classified and analysed under broad categories/strategies of pain relief comparing conscious sedation/analgesia with alternative methods and administration protocols.

Main Results	Our search strategy identified 390 potentially eligible reports and 12 papers met our inclusion criteria. There were no significant differences in clinical pregnancy rates per woman and patient satisfaction between the methods compared. Women's perception of pain showed conflicting results. Due to considerable heterogeneity, in terms of types and dosages of sedation or analgesia used, and tools used to assess the principal outcomes of pain and satisfaction, a meta-analysis of all the studies was not attempted. Of the three trials which compared the effect of conventional medical analgesia plus paracervical block versus electro-acupuncture plus paracervical block, there was no significant difference in clinical pregnancy rates per woman in the two groups (OR 1.01; 95% CI 0.73 to 1.4). For intra-operative pain score as measured by visual analogue scale (VAS), there was a significant difference (WMD -4.95; 95% CI -7.84 to -2.07), favouring conventional medical analgesia plus paracervical block . There was also a significant difference in intra-operative pain by VAS between patient-controlled sedation and physician-administered sedation (WMD 5.98; 95% CI 1.63 to 10.33), favouring physician -administered sedation. However, as different types and dosages of sedative and analgesic agents were used in these trials, these data should be interpreted with caution.For the rest of the trials, a descriptive summary of the outcomes was presented.
Authors' conclusions	There is insufficient evidence to determine the effect of different methods of pain relief when compared with conscious sedation and analgesia used during oocyte recovery. In this review, no one particular pain relief method or delivery system appeared to be better than the other. In future, greater consensus is needed to determine both the tools used to evaluate pain and the timing of pain evaluation during and after the procedure. Pain assessment using both subjective and objective measures may merit consideration. In addition, future trials should include intra- and post-operative adverse respiratory and cardiovascular events as outcomes.

1.5. Steiner-Victorin 2005 ☆

Stener-Victorin E et al. The pain-relieving effect of electro-acupuncture and conventional medical analgesic methods during oocyte retrieval: a systematic review of randomized controlled trials. Human Reproduction 2005;20 (2):339–349.[135636].

Purpose	The primary objective of the present review was to determine what pain-relieving effect had been reported for acupuncture and other conscious sedation methods in assisted reproduction therapy since 1990. The secondary objective was to determine pregnancy rates, when possible.
Methods	The data source was the Medline database of the National Library of Medicine covering the period January 1990–January 2004. Bibliographies of relevant publications and review articles were scanned. A systematic review and meta-analyses of randomized, controlled trials comparing the pain-relieving effect of acupuncture and other conscious sedation methods was carried out.
Results	**Of the 30 trials identified, 12** met the selection criteria for this systematic review and were included in the analysis. Five of the 12 studies reported differences in pain experiences during oocyte aspiration, but it was only possible to group the three trials evaluating the effect of electro-acupuncture (EA). The outcomes of these three studies were homogenous except from maximal and average pain.
Conclusion	No method could be regarded as being superior to another, and no consensus on which method is optimal for pain relief during oocyte retrieval was found. **Low doses of lignocaine can, however, be recommended in paracervical block (PCB) as well as EA without pre-medication**. The clinical pregnancy rates appeared to be similar between the studies.

2. Clinical Practice Guidelines

⊕ positive recommendation (regardless of the level of evidence reported)
Ø negative recommendation (or lack of evidence)

2.1. Australian and New Zealand College of Anaesthetists (ANZA) 2020 ⊕

Acute Pain Management: Scientific Evidence Australian and New Zealand College of Anaesthetists (ANZA). 2020:1317P. [205268] . URL.

For oocyte retrieval, electroacupuncture plus sedation reduced procedural and postoperative pain compared with sedation plus placebo or sedation alone (U), but may be inferior to paracervical block plus sedation (Q) (Level I [Cochrane Review]).

2.2. Australian and New Zealand College of Anaesthetists (ANZCA, Autralia-New Zealand) 2015 ⊕

Acute Pain Management: Scientific Evidence. Australian and New Zealand College of Anaesthetists. 2015:714P. [196721].

2. *For oocyte retrieval*, electroacupuncture when added to conscious sedation reduces procedural and postoperative pain more than sedation plus placebo or sedation alone, but not when added to paracervical block (N) (Level I [Cochrane Review]).

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Last update: **10 Apr 2026 13:17**