TITLE : EFFECTS OF NITROUS OXIDE AND/OR HALOTHANE ON CLEAVAGE RATE DURING GENERAL ANESTHESIA FOR OOCYTE RETRIEVAL

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Penetration of anesthetic drugs into ovarian tissue is studied for a few years. When general anesthesia is used for ultrasonically guided oocyte retrieval, maintenance of anesthesia is assured by N2O and/or inhaled anesthetics (1,2,3,4). The influence of N2O on cleavage rate is controversial (2,3). The aim of this study was to assess effects of N2O, halothane or both on cleavage rate (CR) during general anesthesia for oocyte retrieval.

After approval by our Hospital Ethics Committee and informed consent, 200 ASA I patients scheduled for oocyte retrieval entered the study. For each patient induction of anesthesia was performed with propofol 2.5 mg.kg-1 and alfentanil 10 µg.kg-1. For maintenance of anesthesia patients were randomly assigned into 4 groups : Gr.I continuous propofol infusion(CPI) ; Gr.II CPI and N2O 50 % ; Gr.III CPI and halothane ; Gr.IV halothane and N2O. CR is defined as the ratio between the number of 4-6 cell embryos obtained in vitro and mature oocytes harvested. CR was calculated in each group for all patients and for patients without male factors of infertility. Evolution of CR with duration of anesthesia was examined. Correlation between variables were investigated by Student t test, Chi square test and simple linear regression. P values <0.05 were statistically significant.

Groups are similar for age, weight, duration of anesthesia. CR is significantly lower (p <0.001) in Gr.II (Figure 1). We stopped to include patients in Gr.II when, analysing the first 50 patients, we noted a dramatic drop of CR in Gr.II. Gr.II contains 10 patients, other groups 50 patients. CR decreases with time in Gr.I and II, and is constant in Gr.III and IV (Figure 2).

These findings accord with Rosen (2) but differ from findings of Hood (3). We are uncertain about interpretation of deleterious effects of N2O on CR : decrease in methionine synthetase activity or decrease in blood flow to ovarian tissues due to N2O (5) or other undiscovered factor.

We conclude that N2O used without halothane is deleterious for CR and avoid to use it without halothane for oocyte retrieval and GIFT procedures.

References
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Figure 1

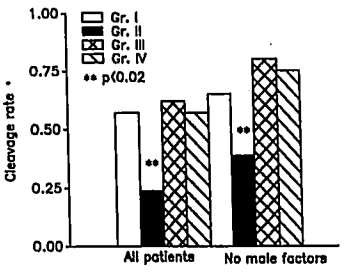
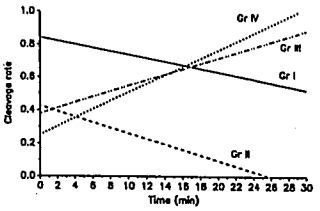


Figure 2



Title: POSTOPERATIVE ANALGESIA WITH EPIDURAL MORPHINE: SINGLE BOLUS VS. DAYMATE™ ELASTOMERIC CONTINUOUS INFUSION TECHNIQUE

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Introduction: Epidural morphine given as a single bolus is a well established technique for providing post-cesarean section analgesia.(1) However this technique is associated with various side effects; the most common being pruritus and nausea/vomiting. Additionally, the duration of analgesia is somewhat variable, lasting anywhere from 12 to 24 hours. We chose to study an alternative method of administering epidural morphine, that is to give a smaller initial loading dose followed immediately by a continuous epidural morphine infusion. We utilized the DAYMATE™ (Baxter Health Care Corp., Deerfield, Il, USA) elastomeric infusion device(2) which provides a continuous infusion of 2 ml/hr. We hypothesized that a lower initial dose of epidural morphine followed by a continuous infusion might both decrease the incidence of side effects and prolong the duration of analgesia.

Methods: After obtaining IRB approval and informed consent, thirty-five parturients scheduled for elective cesarean section were studied in a prospective, randomized, double-blind fashion. Sufficient local anesthetic (0.5% bupivacaine) was administered epidurally to achieve and maintain a T4 level of anesthesia for the surgical procedure. After delivery, group 1 patients received 5.0 mg of preservative-free morphine via the epidural catheter; group 2 patients received 2.5 mg, followed immediately by a continuous epidural infusion of 0.5 mg/hr (2ml/hr)for 24 hours. The epidural catheter was left in place in both groups for 24 hours and a DAYMATE™ infusion device was attached to all patients to maintain "double-blindedness". (Those injected with the 5 mg bolus had their infusion device filled with normal saline but clamped off.) Demographic data, duration(# of patients reporting good or excellent analgesia at 24, 36 and 48 hours), quality of analgesia(4 point scale), side effects(4 point scale), and total 72 hour postoperative analgesic requirements were compared. The Student's t-test and chi-square analysis were utilized with a P-value ≤ 0.05 considered statistically significant.

Results: The data suggest that there is a significant difference between the two groups with respect to the requirement for additional postoperative analgesics and duration(# of patients reporting good or excellent analgesia at 36 and 48 hours). Each patient in group 1 required additional postoperative analgesia; whereas, 24 % of patients in group 2 required no additional analgesics for their entire hospital stay. Mean duration of anesthesia was 23.0±7.0, and 32.5±24.9 in groups 1 and 2, respectively(hrs, mean±S.D.). Furthermore, 17% of patients in group 1 assessed their nausea and vomiting symptoms as severe; whereas, no patient in group 2 complained of severe nausea and/or vomiting. The incidence of pruritus was similar between the two groups, however. With regard to overall quality of analgesia, fewer patients in group 1(8 of 18) noted excellent pain relief than in group 2(11 of 17). Two patients in group 1 stated that they were dissatisfied with their postop analgesia; whereas, no patient in group 2 reported unsatisfactory analgesia. No patient was noted to have hypopnea or otherwise depressed respiratory effort.

Discussion: To our knowledge this elastomeric continuous infusion device has not been evaluated in the post-cesarean patient to date, nor has it been compared in a controlled, double-blind fashion to the well established single bolus technique. Other devices have been used for administering continuous epidural infusions for postop analgesia; most of which, however, are somewhat complicated, expensive or cumbersome. This device is lightweight, inexpensive, disposable and extremely simply to use. We feel our data suggest that this device can be safely utilized to prolong the duration of analgesia provided by epidural morphine, and probably other agents, with potentially fewer side effects. Further studies are suggested utilizing this device in concert with other narcotic agents.

References: 1) Leicht CH, Hughes SC,et al: Anesthesiology 65: A366, 1986. 2) Glaze GM, Salsitz RB, et al: Pain: Suppl V, April 1990