

DECADRON THERAPY ON PREVENTION OF POST OPERATIVE NAUSEA AND VOMITING FOLLOWING CAESAREAN SECTION

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Abstract

Objective: To assess the value of short-term dexamethasone (Dexamethasone) therapy on prevention of post operative nausea and vomiting following caesarean section.

Design and method: A randomized control study was done between the 1st of March 2012 and the end of April 2013 at King Hussein Medical Center. During this period a total of 100 full term women scheduled for elective caesarean section under spinal anaesthesia were included in the study. 50 women were given 8 mg dexamethasone injection and another 50 women were considered as control group. The total incidence of nausea and vomiting was calculated.

Results: During the study period, 100 women enrolled. There was no significant difference among both groups with respect to age, weight, parity, duration of anaesthesia and surgery. In the dexamethasone group, nausea and vomiting were absent in 62% of patients, while only nausea and vomiting were absent in 22% of patients in the control group. Also 16% had nausea and vomiting in the first post operative period in the dexamethasone group, while 44% had nausea and vomiting in the first post operative period in the control group.

Conclusion: Dexamethasone significantly decreased the total incidence of nausea and vomiting in patients who underwent caesarean section under spinal anaesthesia compared with the control group. Also dexamethasone injection is simple to administer and provides a safe and very effective antiemetic protection.

Key words: Dexamethasone, nausea and vomiting, caesarean section.

Background

Nausea and vomiting are among the most unpleasant experiences associated with caesarean section and one of the most common reasons for poor patient satisfaction rating in the postoperative period(1). Nausea and vomiting is seen in almost 50-80% of the patients undergoing caesarean section (CS) under regional anaesthesia when no prophylactic antiemetic is given(2). PONV can cause more hospital stay and admissions following day surgery, therefore increasing medical costs. Many different factors like psychogenic factors, surgical procedure itself, traction of the visceral peritoneum, uncorrected hypotension, administration of opioid drugs and uterotonic agents can lead to nausea and vomiting(3).

Dexamethasone is a corticosteroid with antiemetic and high anti-inflammatory effects. Use of dexamethasone in combination with the other drugs has been reported to increase the antiemetic or analgesic efficacy, and minimal side effects have been reported when it is used as a single agent(4). Recently various studies have been conducted to evaluate the efficacy of steroids in managing PONV(5). Optimum dose was found to be 10mg of dexamethasone, and the same dose was found to be highly effective when given immediately before induction rather than at the end of anaesthesia(6).

Dexamethasone (Decadron) is a potent synthetic member of the glucocorticoid class of steroid drugs that has anti-inflammatory and immunosuppressant effects, while having minimal mineralocorticoid effect. Dexamethasone has an established role in decreasing postoperative nausea and vomiting (PONV)(7).

The purpose of this study is to assess the value of short-term decadron therapy on prevention of post operative nausea and vomiting following caesarean section under regional anaesthesia.

Patients and Methods

A randomized control study was conducted between the 1st of March 2012 and the end of April 2013 at King Hussein Medical Center. King Hussein Medical Center is one of the main referral hospitals in Jordan. It serves a population of about one million, and the maternity care unit receives about 700-800 deliveries monthly. The study was approved by the ethics committee and informed written consent from all participants was obtained.

During the study period, we enrolled 100 full term women weighing 55-80 kg, between the ages 16 to 40 years, scheduled for elective caesarean section under spinal anaesthesia. 50 women were given 8 mg decadron injection one hour prior to caesarean section and another 50 women were considered as the control group. No premedication was given in all patients and lactated Ringer's solution 500 ml was given i.v before surgery.

The patients were evaluated for possible adverse effects such as nausea and vomiting. Assessment for PONV was continued every 4 hours until the first 24 hours. Nausea was defined as a subjectively unpleasant sensation associated with awareness of the urge to vomit; vomiting was the forceful expulsion of gastric

contents from the mouth. Nausea and vomiting were evaluated on a 4-point ordinal scale (0=none, 1=nausea, 2=vomiting, 3=nausea and vomiting). The total incidence of nausea and vomiting was calculated. Chi square and P value were calculated.

Patients excluded from the study were those with gastrointestinal disease or administration of antiemetic medication in the previous 24 hours, and patients who had obstetric complications or evidence of fetal compromise.

Results

During the study period, 100 women were enrolled in the study. There was no significant difference among both groups with respect to age, weight, parity, duration of anaesthesia and surgery as seen in Table 1.

Neonatal outcome was similar in the two groups and all the neonates had Apgar scores > 8 at one and five minutes.

Table 2 compared between two groups regarding the incidence of nausea and vomiting. In the decadron group, nausea and vomiting were absent in 62% of patients, 10% (5 patients) had nausea, 12% (6 patients) had vomiting, while 16% (8 patients) had nausea and vomiting in the first post operative period. In the control group, only nausea and vomiting were absent in 22% of patients, 16% (8 patients) had nausea, 18% (9 patients) had vomiting, while 44% (22 patients) had nausea and vomiting in the first post operative period.

Table 1: Patients' characteristics for two groups

Characteristics	Decadron group (N=50)	Control group (N=50)
Age (yr)	29(16-38)	28(17-39)
Weight (kg)	66 (52-70)	68 (54-72)
Parity	3 (1-5)	3 (1-5)
Operative time (min)	36 (29-43)	35 (28-42)
Anaesthesia duration (min)	54 (42-66)	56 (45-67)

Table 2: Comparison of Nausea and Vomiting incidence in the 2 groups

Patients	(0) None	(1) Nausea	(2) Vomiting	(3) Nausea & Vomiting
Decadron group	31(62%)	5(10%)	6(12%)	8(16%)
Control Group	11(22%)	8(16%)	9(18%)	22(44%)
χ^2	18	2	3	12
P Value	0.005	0.001	0.003	0.005

Discussion

Nausea and vomiting are common side effects in parturients undergoing caesarean delivery performed under spinal anaesthesia and can be very unpleasant to the patients. The reported incidence of nausea and vomiting during caesarean performed under regional anaesthesia varies from 50% to 80% when no prophylactic antiemetic is given. Therefore, use of prophylactic antiemetics in parturients undergoing caesarean delivery is recommended by some authors(8)

Nausea and vomiting during regional anesthesia for cesarean section still remains a significant problem not only for the patient, but also for the surgeon and the anesthesiologist as well. The etiology of intraoperative nausea and vomiting is complex; it may be attributed to surgical stimulation, hypotension, vagal stimulation and uterotonic drugs. Patient demographic data and anesthetic technique also can play a role(9).

Dexamethasone is used for preventing and treating post operative nausea and vomiting. The mechanism of action of dexamethasone is not fully elucidated. There are 2 theories: prostaglandin antagonism and release of endorphins. Dexamethasone was shown in a systematic review to be better than placebo in preventing postoperative vomiting (relative benefit 1.50; 95% CI 1.07 to 2.09; $p < 0.01$)(10).

The result of this study demonstrates that administration of intramuscular decadron injection one hour prior to caesarean section can reduce the incidence of nausea and vomiting among patients under spinal anaesthesia. The mechanism for the antiemetic effect of dexamethasone remains unknown. As Bisgaard et al(11) concluded that preoperative dexamethasone (8 mg) reduced pain, fatigue, nausea and vomiting, and duration of convalescence in patients undergoing non complicated LC, when compared with placebo, and is recommended for routine use. Also Cardoso et al(12) in their study found that dexamethasone reduced the cumulative incidence of nausea and vomiting after caesarean section under spinal anaesthesia.

But Voigt et al(13) in their study recommended a prophylactic medication with tropisetron 2 mg and metoclopramide 20 mg for patients during caesarean section. These agents are safe, reasonably priced, and highly efficient in preventing nausea and vomiting. While Fujii(14) said that overall, these pharmacological and non-pharmacological therapy reduces emetic episodes in parturients undergoing regional anesthesia for cesarean delivery. The clinician must weigh the benefits of using pharmacological and non-pharmacological techniques for nausea, retching, and vomiting in parturients undergoing caesarean delivery performed under regional anesthesia.

Conclusion

Dexamethasone significantly decreased the total incidence of nausea and vomiting in patients who underwent caesarean section under spinal anesthesia compared with the control group. Also dexamethasone injection is simple to administer and provides safe and very effective antiemetic protection over the whole 24- hour period. Further, studies are needed to prove the safety of dexamethasone in parturients undergoing caesarean section.

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