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PRURITUS AFTER INTRATHECAL ANESTHESIA IN PATIENTS UNDERGOING CESAREAN SECTION

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ABSTRACT

Background: Pruritus has been reported after using morphine, especially after cesarean operations. It is very difficult to cure this Pruritus, and responses to its treatment is usually weak. Therefore, this research intended to evaluate pregnant women who underwent elective cesarean operation and received morphine. **Material and Method:** This study is a randomized clinical trial and Double blind research. The study population comprised of women aged 18 to 45 years with ASA_I undergoing elective cesarean section with intrathecal anesthesia technique. Patients randomly divided into three groups. All three groups were experienced spinal anesthesia with hyperbaric bupivacaine. In case of irritation, its incidence and intensity was measured in 3, 6 and 18 hours after intrathecal injection of morphine. **Result:** the Pruritus decreased, such that 3 hours after the injection, 39 patients felt Pruritus. But, 6 hours after injection, 28 patients felt Pruritus, and this number 18 hours after injection was reduced to 12 patients. And thus the Pruritus gradually decreased over time. **Conclusions:** What is evaluated in this study emphasize the use of opioids even with itching. Because over time, the itching is decreased in the group taking the drug and the one that does not receive preventive therapy. However, other researchers are recommended to further investigate this issue through more extensive research.

KEYWORDS: Pruritus, Intrathecal Anesthesia, Cesarean Section.

INTRODUCTION

Nowadays, the number of cesarean deliveries is increasing by the day, yet the rates of cesarean section vary among different societies.[1] Based on recommendations of the World Health Organization published in 1985, rates of cesarean operations should not exceed 10-15% of total deliveries anywhere in the world.[2, 3] However, unfortunately, statistics published in most parts of the world differ greatly from the recommended rate. Based on statistics presented in recent years[4], rates of cesarean section are 40% in Chile and 36% in Brazil[5, 6], 22.4% in Italy, 21.4% in England, and 11.9% in the Sudan.[8] However, this increase in the rates of cesarean section not only has not significantly reduced mortality and pathogenesis rates but has increased health care costs and risks for the mother's health, and has slowed down the mother's recovery process.[3] In 1990, the relative risk of death in women undergoing cesarean operation increased sevenfold. In another study conducted in Italy, the relative risk of death for women having cesarean section was 9.14 per 1000 pregnant women, while the corresponding figure for women giving birth naturally was 3.1 per 1000.[9] Unfortunately, this rising trend has also been observed in Iran so that in a study conducted in Tehran the rate of cesarean section in 1967 was 9.3% but rose to 36.6% in 1983.[2] In another research carried out in Kerman in 1996, the rate of cesarean operation was 37.6%.[10] Moreover, some sources believe that more than half of cesarean sections are unnecessary.[3] Based on various reports from all over the world, different factors related to pregnant women, hospital conditions, decision made by the pregnant woman's physician, and presence of obstetric risk factors are involved in performing cesarean sections. Of course, as previously mentioned, elective cesarean sections constitute the main portion of performed cesarean operations so that, in some statistics, only 2.23% of cesarean sections performed had medical indications. Reasons for performing the rest of cesarean sections were fear of natural birth pain (59%), fallopian tube blockage (7%), history of abortion or infertility (2.3%), difficult previous birth (9.3%), and other miscellaneous reasons (18%).[11] Increased cesarean delivery rates add to the economic burden on families and society so that the costs for nulliparous and multiparous women increase by 1.15 and 20%, respectively. These expenses increase by 10% in cases where epidural anesthesia is required. The cost of unsuccessful natural birth attempt through vagina is only 2% less than the cost of elective cesarean delivery.[12] This increase in costs is due to longer duration of required hospitalization of the mother and her disability. Costs of short-term and long-term complications in the mother and the fetus, increased incidence of placenta previa, additional diagnostic measures, blood transfusion, and of intensive and careful care required by the mother and the newborn must

be added to those mentioned above.[13] Moreover, the cesarean operation itself is not without risks so that mortality rate of women having cesarean operations is 2 to 8 times greater compared to those having vaginal birth.[14] Furthermore, the next extra-uterine pregnancy, hemorrhage, and hysterectomy after childbirth, allergic reactions to latex, cutaneous endometriosis, adenomyosis, gall bladder diseases, appendicitis, and increased hospital stay are other complications of this surgical procedure.[15] Among the problems that women who have had cesarean sections face is pain resulting from visceral distension and uterine contractions.[16] Pain is a common phenomenon that follows all surgical operations, and it is one of the main concerns of patients so that many of them mention postoperative pain as their worst experience in their surgery.[17] Acute postoperative pain is among the worst pains humans tolerate; and the more severe this pain is, the more undesirable the hemodynamic and metabolic responses will be.[18] Postoperative pain can have harmful effects such as higher likelihood of lung tissue collapse, thromboembolism, reduced myocardial blood flow, arrhythmia, urinary retention, intestinal obstruction, delayed wound healing, increased rate of surgical site infections, delayed return of movements in stomach, acute disability, increased nausea, and delayed oral feeding.[17,19] Pain causes undesirable emotional responses such as sadness, aggression, insomnia, and inability to establish logical relationships with the treatment team and the newborn.[20] Moreover, it increases length of stay in recovery, which can delay the establishment of the relationship between the mother and the newborn and the process of breastfeeding (which itself influences the health of the mother and the newborn).[21] In general, post- cesarean pain turns the pleasant event of childbirth into something unpleasant and painful for the mother.[22] Many factors are related to postoperative pain including low age at pregnancy, obesity, fear of surgery, and type of surgery.[23] Numerous drugs are used to relieve this pain, the most routinely used of which is morphine. Nobody is unaware of the effects of morphine in controlling postoperative pain (in cases in which spinal anesthesia is used). However, unfortunately, intrathecal or epidural use of morphine may be restricted if certain side effects occur. Intermittent Pruritus has been reported after using morphine, especially after cesarean operations. It is very difficult to cure this Pruritus, and responses to its treatment is usually weak.[24] Although the exact reason for the neuraxial opioid-induced pruritus has not been found yet, it does not seem to be related to peripheral secretion of histamine. However, it may be related to activation of the pruritus center in the medulla or to the activation of opioid receptors in the nucleus of the trigeminal nerve.[25] Some studies have shown that Pruritus is not related to the dose of the opioid used. Other effects of opioids administered in spinal anesthesia, in addition to pruritus, are nausea

and vomiting.[26] Therefore, this research intended to evaluate pregnant women who underwent elective cesarean operation and received morphine.

MATERIAL AND METHODS

This study is a randomized clinical trial and Double blind research. The study population comprised of women aged 18 to 45 years with ASA_I undergoing elective cesarean section with intrathecal anesthesia technique. The study was conducted in Imam Khomeini and Razi Hospitals in Ahvaz City, Iran in the study year 2013-2014. after getting permission from the ethics committee of the Ahvaz University, patients randomly divided into three groups. All three groups were experienced spinal anesthesia with hyperbaric bupivacaine. In case of irritation, its incidence and intensity was measured in 3, 6 and 18 hours after intrathecal injection of morphine. For analysis, the chi-square test was used to compare relative improvement in the three groups. In addition, the Kruskal-Wallis or one-way ANOVA was used for severe Pruritus that is measured using the VAS. If their distribution is normal, all of them are carried out by SPSS software, version 19.

RESULTS

In this study, patients were divided into 3 groups of 30 people. Irritation was observed in all groups. Side effects of preventive drugs include: the effects of Ondansetron: headache, dizziness, lightheadedness, constipation, redness, burns and pain at the injection place, chest pain, palpitations; and the effects to granisetron: headache, diarrhea, dizziness, fever, swelling at the injection place, pain and redness, and its serious complication is stomachache and abdominal pain (Table A).

Ondansetron	**Granisetron**
Headache	Headache
Dizziness	Diarrhea
Lightheadedness	Dizziness
Constipation	Fever
Redness, pain, and burns at the injection point	Pain, redness, and selling at the injection point
Chest pain and palpitations	Abdominal pain and stomachache

Over time, the Pruritus decreased, such that 3 hours after the injection, 39 patients felt Pruritus. But, 6 hours after injection, 28 patients felt Pruritus, and this number 18 hours after injection was reduced to 12 patients (Figure 1). And thus the Pruritus gradually decreased over time.

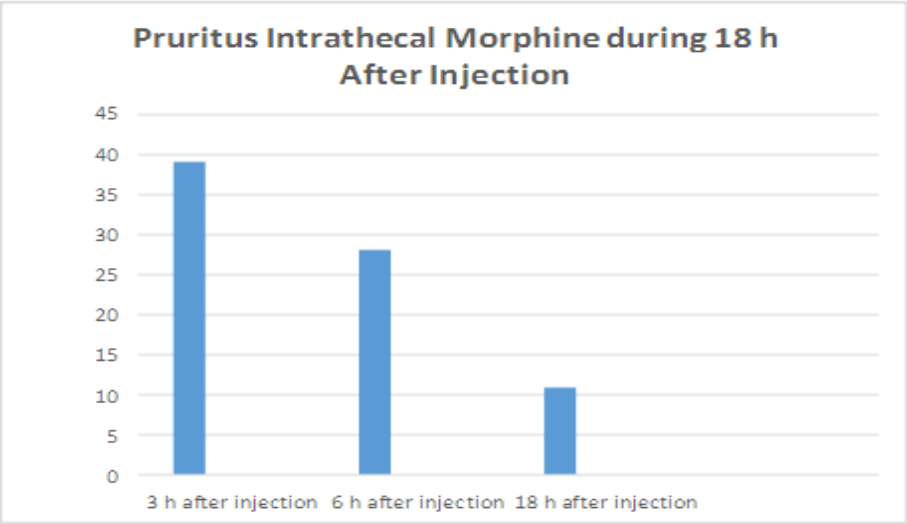

Fig.1. Pruritus Intrathecal Morphine during 18 h after Injection

Discussion and Conclusion: Increased intensity of itching along with the increased frequency of skin scratching as well as sleep disorders lead to reduced quality of life and decreased physical and mental abilities of the patients, and in turn, mood disorders.[27-29] In recent years, the effect of powerful inhibitor of Ondansetron and selective inhibitor of Hydroxytryptamine 5 (HT3 ш) were studied in the cure of patients with kidney failure.[30-33] It reduces nausea and vomiting associated with radiation therapy and chemotherapy and is also used as a prophylactic treatment for nausea after surgery. This medication is mainly metabolized in the liver and does not affect patients with kidney-disease.[34] The use of intrathecal drugs leads to increased depth and duration of sensory and motor block of intrathecal injection of local anesthetic and increases its quality. In addition, in the case of prescription of long-acting drugs, such as meperidine, the duration of analgesia after surgery also increases.[35-36] Both analgesic effect and side effects of intrathecal drugs are dose-dependent. And dose rise might increases both the depth and duration of analgesia after surgery. However, it also increases the incidence and severity of side effects such as itching, nausea, vomiting, and urinary retention.[37] Itching is the most prevalent side effects of intrathecal drugs, and its mechanism is not clear. This phenomenon commonly occurs in pregnancy period[38-44], such that the incidence of this phenomenon in pregnancy has been reported even up to 80 percent.[38] In studies reported, so far many itching drugs such as antihistamines, NSAIDs, opioid antagonists, serotonin and dopamine have been used to reduce the incidence and severity of itching. In addition, antiemetic drugs, including metoclopramide, dimenhydrinate, dexamethasone and ondansetron have been prescribed to reduce the incidence and severity of nausea and vomiting. Unfortunately, none of the above

mentioned methods have been effective in reducing the incidence of complications.[45-53] If one can reduce the incidence and severity of these complications, by the use of higher and more appropriate doses for intrathecal opioids and deepening of intra-operative analgesia and duration of analgesia after surgery, the complications will be prevented. NSAID drugs reduce the incidence of itching by intrathecal opioids[39], reduce morphine consumption during patient control analgesia after cesarean by spinal anesthesia[40] and prolongs the first request for opioids.[41] What is evaluated in this study emphasize the use of opioids even with itching. Because over time, the itching is decreased in the group taking the drug and the one that does not receive preventive therapy. However, other researchers are recommended to further investigate this issue through more extensive research.

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