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Original Research Article

Clinical Experiences of Intravenous Paracetamol Injection at the Level of Pain after Elective Cesarean Section

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ABSTRACT

Introduction: It will work much more effectively if analgesia develops before painful stimulation. Acetaminophen [paracetamol] is a drug derived from para aminophales, which is a non-narcotic analgesic and antipyretic and is in group B in terms of classification. The injection form of this drug contains 10 mg of active substance in one ml and should be Injected intravenously. The aim of this study was to evaluate the analgesic effect of paracetamol at the end of cesarean section before pain and compare it with when this drug is not given. **Material and Methods:** This study is presented as a clinical experience conducted in 2018; Elective women who underwent elective cesarean section for whom spinal anesthesia was prohibited were included in this study. In the first group, in the last 20 minutes of surgery, 1 gram of intravenous paracetamol diluted in normal saline is infused by microst for 20 minutes. The second group did not receive intravenous paracetamol. Postoperative pain was assessed immediately after surgery at 1, 3 and 6 hours after surgery. The severity of surgery was compared in the two groups. **Results:** The results of multivariate analysis show that in general and in the two groups, changes in heart rate, Blood Pressure and Pain changes significantly over time [P-Value <0.05]. **Conclusion:** According to the results obtained in this study, there was no statistically significant difference between systolic and diastolic blood pressure, heart rate and pain intensity in patients in the two groups [diclofenac suppository + injectable paracetamol and diclofenac suppository alone]. Although intravenous paracetamol can probably be effective for mild to moderate pain, it has no significant effect on severe pain in the early hours after surgery.

Keywords: Paracetamol, Cesarean Section, Pain

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Introduction

The international community describes pain as an unpleasant sensory and emotional experience, with actual or potential tissue damage during surgery, which causes local tissue damage followed by the release of painful substances [prostaglandins, histamine, serotonin, bradycin] [1, 2]. And 5- hydroxytryptamine and substance P]. Pain is derived from the Latin root ponea meaning punishment. Pain is an internal phenomenon and includes a physiological feeling and emotional response to it. In fact, pain is composed of three components: sensory, motivational and cognitive. Equal types of pain are determined by factors such as genetic structure, cultural status and social class, age, gender, and the patient's family history of pain [3, 4]. Cesarean section is a term commonly used in midwifery to describe the delivery of a living fetus by cutting the wall of the abdomen and uterus [5]. The primary goal of cesarean section is to preserve the mother's life in impossible deliveries. And includes childbirth in cases of more minor risks to the mother or fetus [6]. Since the establishment of new methods of cesarean section, the rate of childbirth with this method has been expanding [7]. Cesarean delivery rates increased from 4.5 percent in 1965 to about 25 percent in 1988, and have remained the same ever since. Cesarean deliveries are still the most common major surgery in the United States One million things are done annually [8]. Cesarean section, like any other surgery, has side effects in addition to its therapeutic effects, including pelvic injuries, uterine infection, bleeding, and pain. Most women suffer from pain after surgery, especially pain after cesarean section, pain control requires hospitalization [9]. Multiple or modified analgesics, regional anesthesia techniques, and non-opioid analgesics appear to be successful strategies for reducing systemic opioid use, improving postoperative pain relief, and increasing patient satisfaction [faster patient gait and Early clearance][10]. Postoperative pain is often caused by afferent afferent fibers from the wound site. Postoperative pain has several mechanisms, so analgesics with multiple mechanisms have been suggested to reduce the patient's pain. Acetaminophen [paracetamol] is a familiar drug to reduce many pains, including postoperative pain. Acetaminophen is an effective and safe drug. In relieving all types of acute pain [11, 12]. It will work much more effectively if analgesia develops before painful stimulation. Acetaminophen [paracetamol] is a drug derived from paraaminophales, which is a non-narcotic analgesic and antipyretic and is in group B in terms of classification. The injection form of this drug contains 10 mg of active substance in one ml and should be Injected

intravenously. The aim of this study was to evaluate the analgesic effect of paracetamol at the end of cesarean section before pain and compare it with when this drug is not given.

Material and Methods

Study Design

This study is a clinical experience study that was performed on 60 women aged 18 to 45 years of one or two who referred to hospitals affiliated to Tabriz University of Medical Sciences in 2018 and were candidates for elective cesarean section. Patients were in ASA class I and II. Sampling was performed by available methods, taking into account ethical considerations and inclusion and exclusion criteria. This study was performed on women who were not allowed to have spinal anesthesia.

Methods

All patients underwent routine anesthesia. Maintenance of anesthesia was continued with propofol [200-100 μg / kg / h] with N2O. After discharge, 2 μg /kg fentanyl was injected into the patient. Antibiotics and oxytocin were also given routinely. In the first group, in the last 20 minutes of surgery, 1 gram of intravenous paracetamol diluted in normal saline is infused by microst for 20 minutes. The second group did not receive intravenous paracetamol. Postoperative pain was assessed immediately after surgery at 1, 3 and 6 hours after surgery. The effect of paracetamol on patient hemodynamics [systolic, diastolic blood pressure and heart rate] was evaluated before anesthesia, immediately after surgery, 1, 3 and 6 hours after surgery. If you have any problems, go to the anesthesia clinic or operating room of the same hospital.

Ethical considerations

This study was conducted with the code of ethics [IR.TBZMED.REC.1399.368] which was licensed by the ethics committee of Tabriz University of Medical Sciences. All women signed the informed consent form after the objectives of the study were explained to them. Attendance at this study was completely optional and all patients received routine treatment.

Data analysis

In describing the data, appropriate tables and statistical indicators such as mean, etc. have been used, and in data analysis, first the normality of the data using a one-sample Klomogorov-Smirnov test [Kolmogorov- Smirnov] has been studied by modifying Lilliefors, which confirms its normality by using appropriate parametric methods such as the student test, and if it is not normal, the Mann-Whitney test has been used. In data analysis with scale The Pearson Chi-Square test was used nominally, and in cases where more than 20% of the expected frequencies of the tables were less than 5 [Cochran], the Fisher's Exact Test [Fisher's Exact Test] was used. Both linear models with repetitive sizes have been used. The software used in this research is SPSS v.20 and Statistics V.10 and the significance level of the tests is less than 5% [in the results the values are less than 5%. Marked with a "*" and values less than 1% marked with a ** "].

Results

In terms of maternal age distribution, the mean age of study participants was 26.7 years [18-37] and there was no significant difference between the two groups in terms of maternal age [P-Value = 0.903] in terms of maternal weight distribution. The mean weight of the participants in the study was 73.2 kg [53-88] and there was no significant difference between the two groups in terms of maternal weight [P-Value = 0.739] in terms of parity distribution of 33 patients [55%] with parity. 1, 15 people [25%] have parity 2, 6 people [10%] have parity 3, 3 people [5%] have parity 4 and 3 people [5%] have parity 5 and there is no significant difference between the two groups in terms of parity [P-Value = 0.477].

Total	Control	Case	Parity
Number	Number	Number	
33	19	14	1
15	4	11	2
6	3	3	3
3	2	1	4
3	2	1	5
60	30	30	Total
Mann-Whitney U =-0.712 P-Value=0.477			Test Results

In terms of ASA class distribution, 47 people [78.3%] have ASA class one and 14 people [21.7%] have ASA class two, but there is no significant difference between the two groups in terms of ASA class [P-Value = 0.756]. In terms of comparison, preoperative systolic blood pressure was 122.5 in the case group and 114 in the control group, immediately after surgery in the case group was 110 and in the control group was 99.3, 1 hour after surgery in the case group was 105.2 and in the group. The control was 100.3, 3 hours after surgery in the case group was 104.4 and in the control group was 93.3 and 6 hours after the operation was 108.6 in the case group and 99.1 in the control group. The results of Levene's test show that the hypothesis of equality of variances in the two groups is not rejected [P-Value>0.05]. Also, according to the results of Mauchly's Sphericity test, the value of which is significant [P-Value> 0.05] Multivariate analysis shows that in general and in both groups, changes in systolic blood pressure have significant changes over time [P-Value <0.05] but there is a statistically significant difference between case and control groups in terms of systolic blood pressure level. Not observed [P-Value> 0.05]. In terms of comparison, preoperative diastolic blood pressure was 78 in the case group and 76.7 in the control group, immediately after the operation was 69.8 in the case group and 69.3 in the control group, 1 hour after surgery in the case group was 65.1 and in the group. The control was 63.3, 3 hours after surgery in the case group was 64.3 and in the control group was 63.5 and 6 hours after the operation was 65.4 in the case group and 65.1 in the control group. The results of Levene's test show that the hypothesis of equality of variances in the two groups is not rejected [P-Value> 0.05]. Also, according to the results of Mauchly's Sphericity test, its value is significant [P-Value> 0.05]. The results of multivariate analysis show that in general and in both groups, diastolic blood pressure changes were significant over time [P-Value<0.05] but there was a statistically significant difference between case and control groups in terms of blood pressure levels. No diastolic [P-Value>0.05] in terms of comparison of preoperative heart rate in the case group was 102.1 and, in the control, group was 102.2, immediately after surgery in the case group was 93.4 and, in the control, group was 103, 1 The postoperative time was 90.5 in the case group and 94.2 in the control group, 3 hours after the operation was 87.6 in the case group and 99.2 in the control group, and 6 hours after the operation was 90.5 in the case group and 96.7 in the control group. The results of Levene's test show that the hypothesis of equality of variances in the two groups is not rejected [P-Value> 0.05]. The results of multivariate analysis show that in general and in the two groups, changes in

heart rate changes significantly over time [P-Value <0.05] but there was a statistically significant difference between case and control groups in terms of heart rate. Not observed [P-Value> 0.05] In terms of pain comparison immediately after surgery in the case group was 6.6 and, in the control, group was 7.7, 1 hour after surgery in the case group was 3.8 and, in the control, group was 4.9, 3 Postoperative hours were 4.1 in the case group and 4.5 in the control group, and 6 hours postoperatively were 4.2 in the case group and 4.5 in the control group. Cannot be [P-Value> 0.05]. Also, according to the results of Mauchly's Sphericity test, the value of which is significant [P-Value> 0.05]

Discussion

Today, pain is considered as the fifth vital sign because of its importance and the need to control it in preventing mortality and complications after surgery. Postoperative pain with adverse consequences and affecting various mechanisms causes fundamental changes in the body metabolism in susceptible individuals and can cause hypertension, heart ischemia, respiratory, gastrointestinal and renal problems and even increase patient mortality [15]. And by delaying the patient's movement and walking, increase the length of hospital stay and treatment costs of the patient [16]. Today, the use of narcotic analgesics is one of the basic foundations of treatment. Due to the side effects of these compounds, several studies have been performed to reduce pain more effectively and also to reduce the use of narcotic analgesics, which show that nonsteroidal anti-inflammatory drugs [NSAIDS] and acetaminophen, which are commonly used as antipyretics, can be used. Used as an alternative or adjunct to narcotic analgesics in the treatment of postoperative pain [17-19]. The aim of this study was to evaluate the effect of intravenous paracetamol at the end of surgery on pain after cesarean section. In our study, systolic blood pressure between the two groups was examined at different times. In other words, this figure was reached immediately after surgery and and 1 hour later to and, 3 hours later to and 6 hours later. Therefore, according to the results, although the changes in systolic blood pressure in both groups had significant changes over time [20-22]. So that up to 3 hours after surgery showed a decreasing trend and then again, an increasing trend, but no statistically significant difference was observed between the case group [receiving paracetamol] and control in terms of systolic blood pressure level. Similarly, the results showed that although in general and in both groups,

diastolic blood pressure changes were significant over time [23-25]. But there was no statistically significant difference between case and control groups in terms of diastolic blood pressure levels. The mean number of preoperative heart rates in case and control groups were, immediately after surgery, 1 hour later, 3 hours later, 6 hours later, respectively. According to the results, although in general and in both groups, the trend of changes in heart rate over time is significant. But there was no statistically significant difference between case and control groups in terms of heart rate. Therefore, as observed, there is no statistically significant difference between the two groups in terms of cytological, diastolic blood pressure and heart rate over time, so it can be said that according to the results of this study, paracetamol has no effect on hemodynamics [26-28]. Mean pain scores of case and control groups immediately after surgery were 6.6 ± 2.2 and 7.7 ± 1.6, respectively, one hour later 3.8 ±2.1 and 4.9 ± 1.7, 3 The next hour was 4.1 ± 2.1 and 4.5 ± 1.3 and 6 hours later was 4.2±2.2 and 4.5±1.2. The results showed that although the changes in pain over time were significant in both groups [$p < 0.05$] and on the other hand in all postoperative times the mean pain score was lower in the group receiving paracetamol, and In the first hour after surgery, there was a statistically significant difference between the two groups in terms of pain, but in general, there was no statistically significant difference between the case and control groups in terms of pain [$p > 0.05$], in other words, paracetamol. It did not lead to a significant reduction in pain [29-31]. The results of a study, contrary to our study, showed that the overall pain intensity within 24 hours was statistically significantly different in favor of the intravenous acetaminophen group compared with the placebo group. In fact, the pain was much lower in the intravenous acetaminophen group and the use of adjuvant analgesia, analgesia, and administration was lower. The reason for this difference may be the concomitant use of diclofenac suppository in our study, which reduced the pain intensity in both groups, but in the study in the control group, only placebo was used [32-34]. In contrast to our study, the results of the study showed good results from paracetamol so that in children undergoing tonsillectomy there was no significant difference in pain reduction compared to tramadol and it also showed faster recovery than intravenous tramadol in children. The author's preference in this study seems to be due to the lower side effects of paracetamol than tramadol, especially in children [35-37]. Another study examining different doses of intravenous paracetamol to reduce pain in upper limb surgery concluded that administration of 30 mg/kg paracetamol prior to induction of anesthesia significantly reduced the need for opioid administration to control pain for up to 6

hours. After surgery. The reason for the good efficacy of paracetamol in this study seems to be the higher dose used than in our study [for example, in a normal 60 kg person, about 1.8 g of paracetamol was prescribed].

Conclusion

According to the results obtained in this study, there was no statistically significant difference between systolic and diastolic blood pressure, heart rate and pain intensity in patients in the two groups [diclofenac suppository + injectable paracetamol and diclofenac suppository alone]. Although intravenous paracetamol can probably be effective for mild to moderate pain, it has no significant effect on severe pain in the early hours after surgery.

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