Bulletin of Environment, Pharmacology and Life Sciences
Bull. Env. Pharmacol. Life Sci., Vol 3 [12] November 2014: 93-107

Online ISSN 2277-1808
Journal's URL:http://www.bepls.com
CODEN: BEPLAD
Global Impact Factor 0.533
Universal Impact Factor 0.9804

ORIGINAL ARTICLE

Comparison of the Analgesia between Indomethacin Suppository and Acetaminophen Tablet in Patients Undergone Spinal Caesarean

H. Hosseinnejad[1], H.Aghaei[2], A.Tashakori[3], S.Bahrami[4], M.Lajevardi[5], Majid Vatankhah[6]
1. Department of Anesthesiology, Shahrood Islamic Azad University Of Medical Sciences, Iran.
2. Dermatologist , Shahrood University Of Medical Science, Imam Hossein Hospital.
3. Department of Medical Science, Shahrood Islamic Azad University Of Medical Scinces.
4. Department of Medical Science, Shahrood Islamic Azad University Of Medical Scinces.
5. Resident Of Pain Fellowship , Theran University Of Medical Sciences.
6 Department of Anesthesiology, Bandar Abbas University Of Medical Sciences, Iran.

ABSTRACT
Postoperative analgesia is one of the important objectives in women undergone Caesarean surgery. We, therefore, we dealt with the comparison of the analgesic effect between Acetaminophen and Indomethacin in post-Caesarean analgesia. This random clinical trial was performed on 200 women who had undergone Caesarean delivery in Shahrood's hospitals in 2013 and were randomly placed in 4 groups of 50 consisted of placebo, one Acetaminophen tablet, two Acetaminophen tablets and Indomethacin suppository and the postoperative intensity of pain was investigated with the help of VAS. In this random clinical trial, those 200 women who were studied, were divided into four groups of 50. Based on VAS (Visual Analog Scale) pain intensity was like this: Pain intensity mean was 4.2 in the group that received Indomethacin suppository, 8.28 in the group that received one Acetaminophen tablet, 6.2 in the group that received two Acetaminophen tablets and 8.4 in the group that received placebo. Therefore, pain intensity based on VAS showed statistically significant difference (P=0.0001) and the highest pain intensity was in the placebo group and the lowest was in the Indomethacin suppository group. Finally, Based on the results of this study and comparing them with similar studies conducted in this field, it can be inferred that Indomethacin suppository will result in a significant decrease in post-Caesarean pain intensity.
Keywords: *Caesarean, Pain, Indomethacin, Acetaminophen*

Received 09.08.2014 Revised 18.09.2014 Accepted 28.10. 2014

INTRODUCTION

Caesarean section is one of the main surgeries in gynecology ward whose prevalence is rising because of various reasons including increase in age of marriage, legal issues related to women, socioeconomic situation of the society, etc. Therefore, Caesarean is one of the social health priorities and prevention of postoperative problems is of great importance [1]. One of the important complications of Caesarean is postoperative pain. Besides creating an uncomfortable sensation for the patient, pain itself results in inactivity, decrease in patient's desire for activity and complications caused by inactivity including Atelectasis, DVT, constipation, etc. and on the other hand, pain intensity is in direct relation with increased activity of inflammatory systems and hence increased levels of cytokines, which itself causes complications for the patients; however, pain reduction may have great results [2]. With investigating valid global articles, numerous studies are found related to postoperative pain intensity specifically for Caesarean, including studies which investigate the effect of NSAID and Acetaminophen on postoperative pain. There are various methods for reducing post-Caesarean pain, with each of them having a certain efficiency and effectiveness and therefore, various studies are required to determine and compare the effectiveness of different methods [3]. Therefore, in this study, we discussed the analgesic effect of Acetaminophen tablet and Indomethacin suppository on reducing post-Caesarean pain.

OBJECTIVE OF RESEARCH

Overall Objective of Research is the comparison between the analgesia of Acetaminophen tablet and Indomethacin suppository in reducing postoperative pain of spinal Caesarean which is broken into minor objectives:

Determination of frequency distribution of age in study subjects
Determination of frequency distribution of BMI in study subjects
Determination of frequency distribution of gravity in study subjects
Determination of frequency distribution of abortion in study subjects
Determination of frequency distribution of parity in study subjects
Determination of frequency distribution of Caesarean time in study subjects
Determination of frequency distribution of the interval between anesthesia and the start of pain in study subjects
Determination of frequency distribution of the purpose of Caesarean in study subjects
Determination of frequency distribution of VAS in study subjects

HYPOTHESES OF RESEARCH

Analgesic effects of Acetaminophen tablet and Indomethacin suppository in reducing post-Caesarean pain are similar.
Analgesic effects of Acetaminophen tablet and Indomethacin suppository in reducing post-Caesarean pain are different.

MATERIAL AND METHODS

This randomized double-blind clinical trial, performed over 200 women in whom in 2013, and was undergoing elective cesarean delivery, with the help spinal anesthesia, in Khatam `olanbya and Fatemiyeh hospitals of shahrood. The people, were included randomly in one of four groups of 50 people, including the placebo group (multi vitamin capsule), Group(1),one 325 mg acetaminophen tablet, group(2),two 325 mg acetaminophen tablets, and 100 mg indomethacin suppository group(all immediately before surgery), and the postoperative pain, was investigated using VAS.

Finally, after collecting the required data from all the studied subjects, we attempted to analyze the data, in this context; we took advantage of the SPSS statistical software, version 13. For the qualitative variables, frequency and frequency percentage, for the quantitative variables, mean and standard deviation were calculated. Chi-square and ANOVA tests were used and significance level was considered $p < 0.05$.

RESULTS

Table 1. The age frequency distribution of the studied population

	Age					total
	20	21	22	23	24	
Indomethacin suppository	6 12.0%	4 8.0%	4 8.0%	15 30.0%	21 42.0%	50 100.0%
A tablet of acetaminophen	9 18.0%	10 20.0%	6 12.0%	7 14.0%	18 36.0%	50 100.0%
Two tablets of acetaminophen	0 0%	3 6.0%	6 12.0%	6 12.0%	35 70.0%	50 100.0%
Placebo	6 12.0%	0 0%	9 18.0%	10 20.0%	25 50.0%	50 100.0%
total	21 10.5%	17 8.5%	25 12.5%	38 19.0%	99 49.5%	200 100.0%

The age frequency distribution of the subjects in the four groups was similar. (P> 0.05)

Table 2. Frequency distribution of quantitative variables in the studied population

		Mean	Std. Deviation	95% Confidence Interval For Mean	
				Lower Bound	Upper Bound
BMI	Indomethacin	27.4702	1.81932	26.9532	27.9872
	One tablet of acetaminophen	27.4354	1.54480	26.9818	27.8889
	Two tablets of acetaminophen	27.4083	2.02201	26.8337	27.9830
	Placebo	28.4332	1.45840	28.0188	28.8477
Gravid	Indomethacin	1.42	0.499	1.28	1.56
	One tablet of acetaminophen	1.62	0.490	1.48	1.76
	Two tablets of acetaminophen	1.76	0.431	1.64	1.88
	Placebo	1.82	0.388	1.71	1.93
Abortion	Indomethacin	0.12	0.328	0.03	0.21

	One tablet of acetaminophen	0.36	0.485	0.22	0.50
	Two tablets of acetaminophen	0.14	0.351	0.04	0.24
	Placebo	0.52	0.505	0.38	0.66
Parity	Indomethacin	1.30	0.463	1.17	1.43
	One tablet of acetaminophen	1.26	0.443	1.13	1.39
	Two tablets of acetaminophen	1.62	0.490	1.48	1.76
	Placebo	1.24	0.555	1.08	1.40
C/S Duration	Indomethacin	32.30	10.843	29.22	35.38
	One tablet of acetaminophen	38.80	13.308	35.02	42.58
	Two tablets of acetaminophen	36.00	9.258	33.37	38.63
	Placebo	38.60	8.924	36.06	41.14
Anesthesia-Pain Interval	Indomethacin	92.40	23.217	85.80	99.00
	One tablet of acetaminophen	98.98	14.769	94.49	103.47
	Two tablets of acetaminophen	95.60	12.521	92.04	99.16
	Placebo	85.70	13.210	81.95	89.45

The frequency distribution of gravid BMI, parity, abortion, caesarean section, and theinterval between the anesthesia and pain onset in the subjects in four groups were similar. (P> 0.05)

Table 3. The frequency distribution of the reason for caesarean section in the subjects

	Reason for caesarean section in patients						total
	Repeat	CPD	Breach	Placenta Previa	PROM	Others	
Indomethacin suppository	9 18.0%	25 50.0%	0 0%	0 0%	6 12.0%	10 20.0%	50 100.0%
A tablet of acetaminophen	12 24.0%	23 46.0%	6 12.0%	3 6.0%	0 0%	6 12.0%	50 100.0%
Two tablets of acetaminophen	16 32.0%	12 24.0%	3 6.0%	0 0%	15 30.0%	4 8.0%	50 100.0%
Placebo	16 32.0%	25 50.0%	3 6.0%	3 6.0%	0 0%	3 6.0%	50 100.0%
total	53 26.5%	85 42.5%	12 6.0%	6 3.0%	21 10.5%	23 11.5%	200 100.0%

The frequency distribution of thereason for cesarean section, in the subjects in all four groups was similar. (P> 0.05)

Table 4. VAS frequency distribution in the studied population

		Mean	Std.Deviation	95% Confidence Interval For Mean	
				Lower Bound	Upper Bound
VAS	Indomethacin suppository	4.24	0.894	3.99	4.49
	A tablet of acetaminophen	8.28	1.212	8.06	8.74
	Two tablets of acetaminophen	6.2	1.539	5.76	6.64
	Placebo	8.4	1.552	7.84	8.72

Pain intensity in all four groups showed a statistically significant difference (P = 0.0001), and maximum pain intensity was in the placebo group, and the lowest was in the indomethacin group

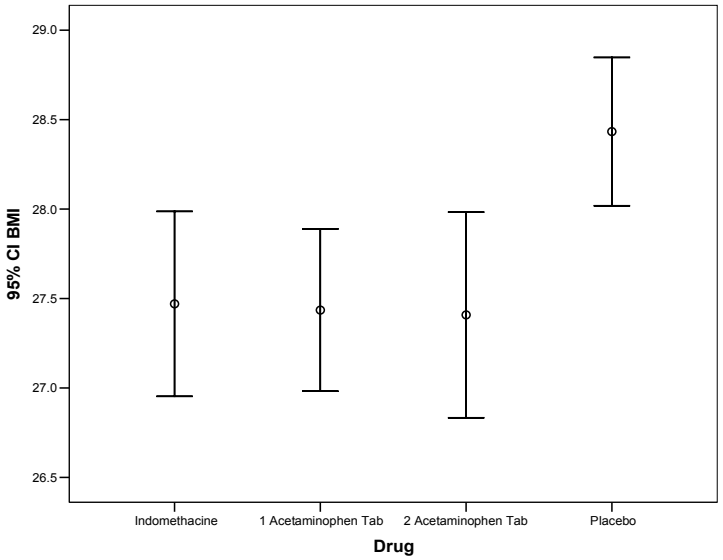

Figure 1. BMI frequency distribution in the studied population

BMI frequency distribution in the studied subjects of all four groups was similar (P > 0.05).

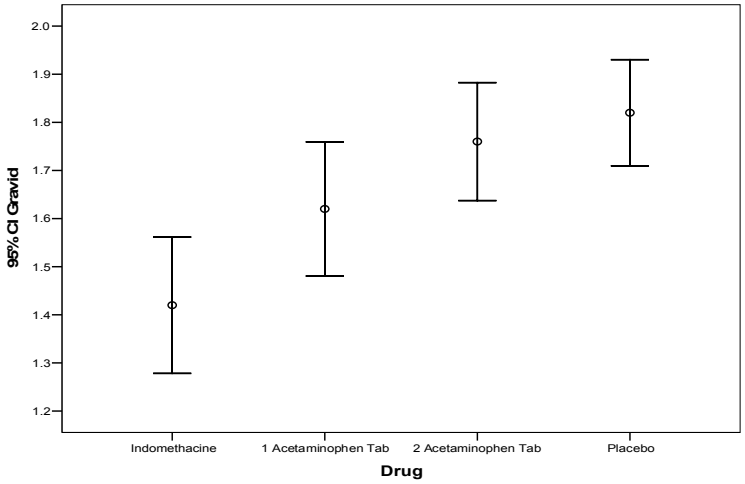

Figure 2. Gravid distribution in the studied population

Gravid frequency distribution of the subjects in all four groups was similar (P> 0.05).

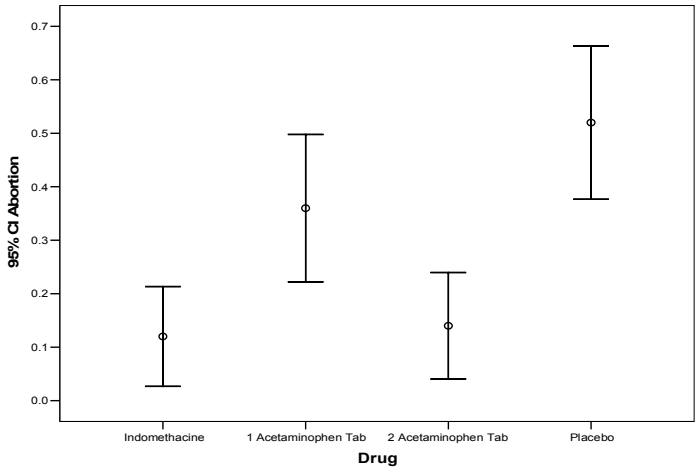

Figure 3. Frequency distribution of abortion in the studied subjects

Frequency of abortion in the subjects in all four groups was similar (P> 0.05)

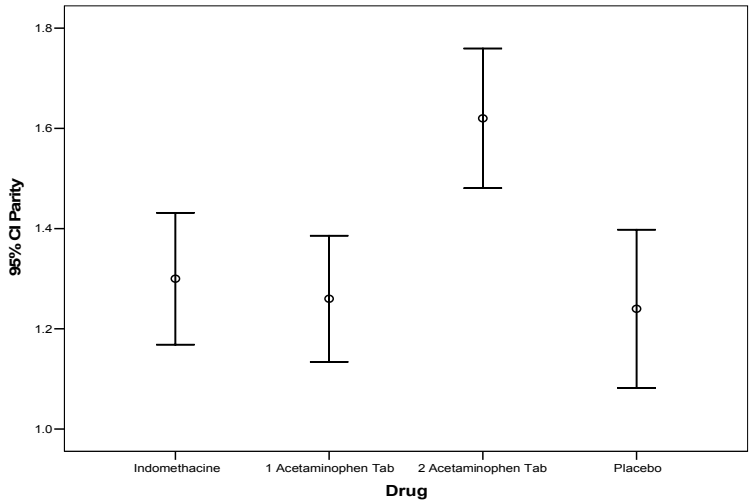

Figure (4). Parity frequency distribution in the studied population

Parity frequency distribution of the subjects in each group was similar (P> 0.05**)**

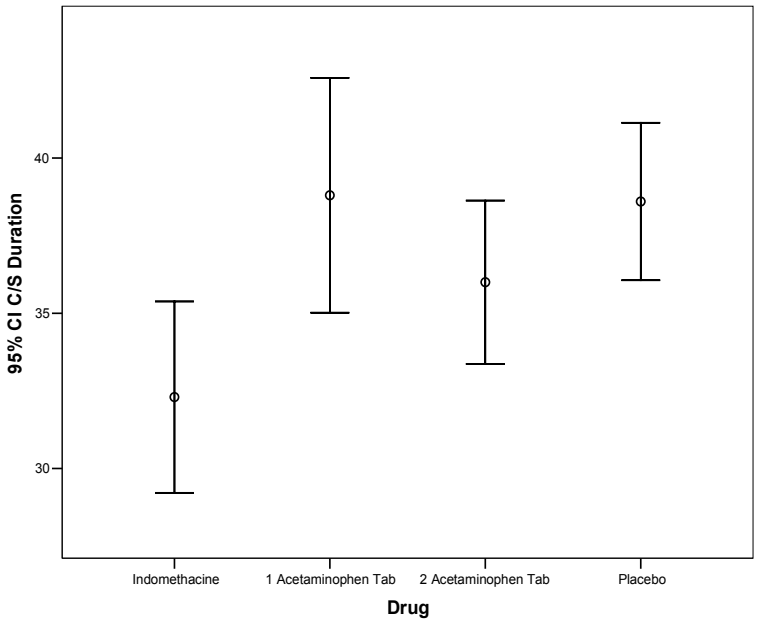

Figure (5). Frequency distribution of cesarean delivery duration for the studied subjects
Frequency distribution of cesarean delivery duration in the subjects in all four groups was similar (P> 0.05**).**

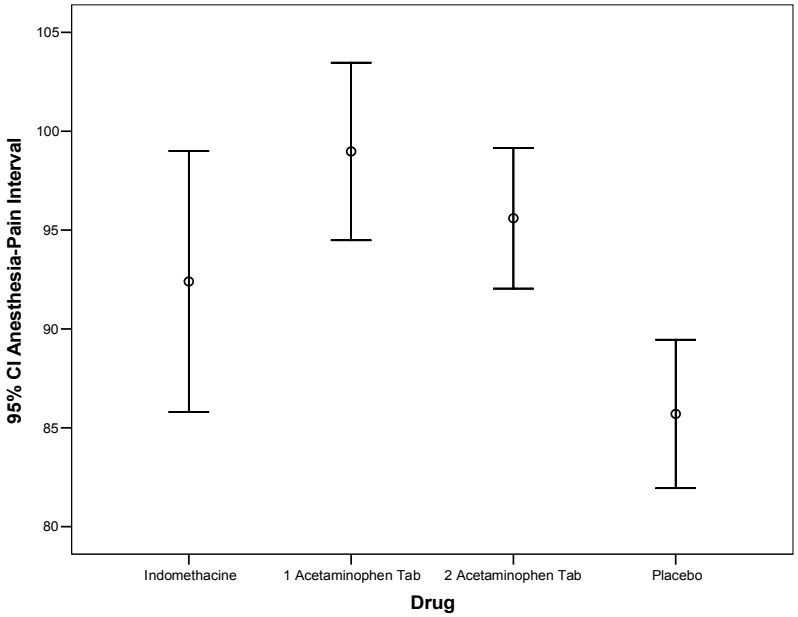

Figure (6). Frequency distribution of interval between the anesthesia and pain onset in the studied patients

Frequency distribution of the interval between the anesthesia and pain onset in these patients was similar in the four groups (P> 0.05**).**

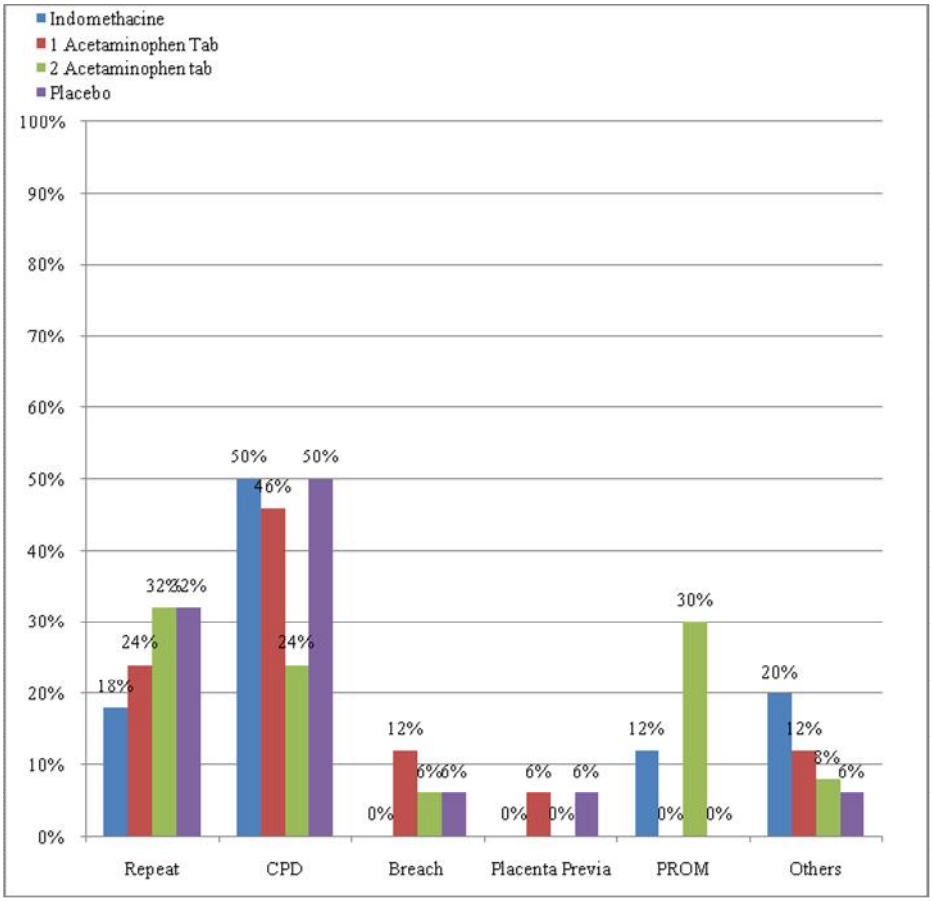

Figure (7). The frequency distribution of the reason for caesarean section in the subjects

The frequency of the reason for cesarean delivery was similar in the four groups (P > 0.05)..

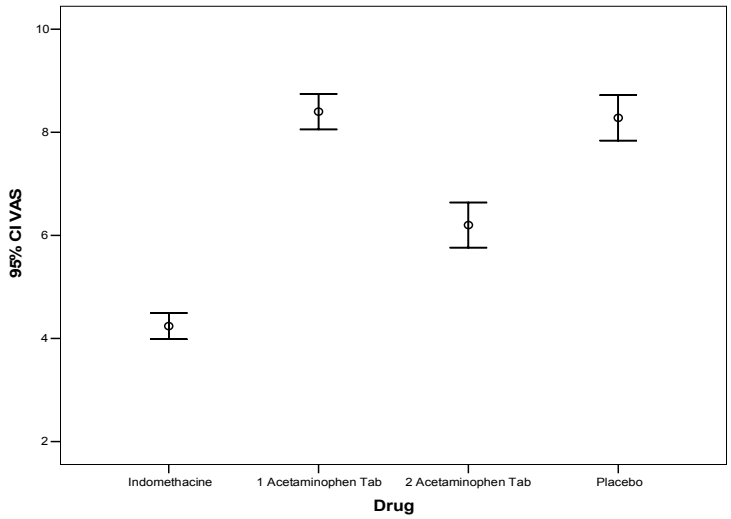

Figure (8). VAS frequency distribution in the studied population

Pain intensity in all four groups showed significant difference (P = 0.0001) and maximum pain intensity was in the placebo group and lowest was in the indomethacin group**.**

DISCUSSION

Pain post operative can makes complications for the patients. Pain decrease activity of patient and complications caused by inactivity including atelectasis, DVT, constipation, embloli, etc. there are various studies about pain postoperative [4]. In this study, we discussed the analqesic effect of Acetaminophen tablet and indomethacin suppository on reducing post Caesarean pain.

In this study, we observed that the intensity of pain, according to VAS, in the four groups showed significant difference (P = 0.0001,) and the most pain was in the placebo group, and the lowest intensity was in the indomethacin group. The importance of these results would be greater, especially considering the matched four groups of and randomly dividing of the participants in the mentioned groups.

In a study, conducted by Siddik and colleagues, in Lebanon, that its results, released in 2001, it was announced that the NSAID**s** drug family has a suitable effect in reducing the need for morphine, in the post cesarean phase, but acetaminophen , does not strength this effect very much [5], of course, in our study, we observed this effect more obvious in the case of acetaminophen , although, again, it was not as effective as indomethacin**.**

In a study carried out by Davis and colleagues, in America, and its results were published in 2006, declared that the use of acetaminophen orally, caused a significant decrease in the amount of postoperative pain, that we achieved the same result about the oral acetaminophen, especially if two tablets were used [6].

In a study conducted by Kilykaslan and colleagues, in Turkey, that its results were published in 2010, it was announced that the use of acetaminophen, may increase the amount of analgesia after cesarean delivery, and reduce the need for Tramadol, which is consistent with our findings [7].

In a study conducted by Munyshankar and colleagues in the UK, and its results were published in 2008, it was announced that the concurrent use of acetaminophen and NASIDs, causes a 38 percent decrease in morphine consumption, compared with the single use of acetaminophen, which could indicates a synergistic effect of these two drugs [8]. That is the same with our findings.

CONCLUSIONS

Finally, based on the results of this study, it is concluded that the use of indomethacin suppository, caused a significant reduction in pain intensity after cesarean section, and therefore its use in this group of patients is recommended.

ACKNOWLEDGEMENT

The authors would like to thank the research center of Islamic Azad university Shahrood Branch for its financial support and physiology research center of IAUS for its statistical contribution to this article.

REFERENCES

1. Labib NY, Mortada MM, Guirguis WW. Abd El-Aziz HM. (2007). Cesarean section deliveries in one health insurance hospital in Alexandria. J Egypt Public Health Assoc.; (3-4):299-317.
2. Tam pakoudis P, Assimakopoulos E, Grimbizis G, et al. (2004). Cesarean section rates and indications in Greece: data from a 24 year period in a teaching hospital. Clin EXP obsted Gynecol. 31(4): 289-920
3. Atansov A. (1991). The risks for fetus and mother depending on the type of cesarean section .AkushGinekol (sofia). 30(1):1-5
4. Ongck, seymour RA, Lirk P, Merry AF. (2010). Combining paracetamol (acetaminophen) with nonsteroidalanti inflammatory drugs: a qualitative systematic review of analgesic efficacy for acute post operative pain. Anesth Analg. 2010; 110(4): 1170-9.
5. SiddikSM ,Aouad MT, Jalbout MI, Rizk LB, Kamar GH, Baraka AS. (2001). Diclofenac and / or propacetamol for postoperative pain management after cesarean delivery in patients receiving patient controlled analgesia morphine. RegAnesth Pain Med; 26(4):310-5.
6. Davis KM, Esposito MA. Meyer BA. (2006). Oral analgesia for pain after cesarean delivery : a randomized controlled trial. Am J Obstet Gynecol. 194 (4) : 967—71.P
7. Kilicaslan A, Tuncer S, Yuceaktas A, Uyar M, Reisli R. (2010). The effects of intravenous paracetamol on postoperative analgesia and tramadol consumption in cesarean operations.Agri.: 22(1) : 7-12.
8. Munishankar B, Fettes P, Moore C, McLoed GA. (2010). A double – blind randomized controlled trial of paracetamol ,diclofenac or the combination for pain relief after caesarean section. Int J Obstet Anesth. Jan ; 17(1):9-14.

CITATION OF THIS ARTICLE

H.Hosseinnejad, H.Aghaei, A.Tashakori, S.Bahrami, M.Lajevardi, Majid Vatankhah. Comparison of the Analgesia between Indomethacin Suppository and Acetaminophen Tablet in Patients Undergone Spinal Caesarean. Bull. Env. Pharmacol. Life Sci., Vol 3 [12] November 2014: 97-103