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Available online at: http://www.iajps.com ***Research Article***

COSEQUENCE OF TRAMADOL ON SHIVERING AFTER SPINAL ANAESTHESIA IN CAESAREAN SURGERY

[1]Dr. Usama Bin Aslam, [2]Dr. Sara Iqbal, [3]Dr. Dania Asghar

[1]Independent Medical College Faisalabad

[2]Sargodha Medical College

[3]King Edward Medical University Lahore

Abstract

Objective*: Shivering after surgery is a problem normally found after SA (spinal anaesthesia). For avoidance & treatment of the problem, various medicines are in utilization. This research work assessed the consequences of the tramadol on shivering after surgery avoidance in the patients who underwent the caesarean surgery after SA.*

Methodology: *This transverse research based on the random sampling. Ninety patients who were willing for caesarean surgery with ASA (American Society of Anaesthesiologist) 1 or 2, from the month of April 2017 to February 2018 were selected arbitrarily to case or control groups. SA carried out for all these patients. At the finishing point of the surgery, one milligram per kilogram tramadol in twenty millilitres to the case group & twenty millilitres of usual saline to the group of control was gradually injected in veins. The evaluation of the patients carried out according to the percentage of the saturation of arterial oxygen, hemodynamic symptoms, the availability & concentration of trembling & vomiting. The analysis of the gathered information carried out with the help of Chi square test method.*

Results: *Shivering was present in the 39 patients of the of the control group, while shivering was present in only 4 patients of the case group. Medium level shivering was present in 33 patients of the group of controls & mild shivering was present in only six patients. In the case group, moderate shivering was present in only 2 patients & mild shivering was faced by only 2 patients. Serious nature of shivering was not present in any group. But an important disparity was available in the patients of both groups. There was not any significant disparity was present among the two groups on the basis of heart beat rate, BP, percentage of the oxygen saturation, vomiting & the temperature of the body of the patients.*

Conclusions: *Tramadol is an effectual medicine in the avoidance of the shivering after SA. Hemodynamic problems are not initiated by this medicine. This is a secure & effectual for the avoidance of the shivering after SA.*

Key Words*: Oxygen Saturation, Spinal Anaesthesia, Hemodynamic, Anti-cholinergic, shivering, Opiate.*

Corresponding author:

Dr. Usama Bin Aslam,

Independent Medical College, Faisalabad.

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INTRODUCTION:

Shivering after surgery is much irritating for patients. Its occurrence is concluded from fifty to sixty percent in different research works [1, 2]. This problem usually happens following unnecessary hypothermia at the time of surgery [3, 4]. This enhance the consumption of the oxygen, heart beat rate, BP, the creation of the CO2, hemodynamic alterations & high pain in the place of surgery [5]. For the avoidance and the treatment of this problem, the utilization of the hot and moist gases is the best option [1, 2]. Different types of medicines as meperidine [4], clonidine, ketansrin [6], anticholinergics [7], opiate agonists & at the last tramadol are in use [8-16]. Tramadol hydrochloride is very effectual medicine in the prevention of the shivering after SA in the patients [9]. An impact of µ-opioid agonist enhances the secretions of the hydroxytriptamine which directly affect the centre of the regulation for body temperature [12, 17, 18]. This medicine has very low extra effects as vomiting or hindrance in respiration as compared to the other µ receptor agonists [12]. Chan [12] compared 0.25 & 0.50 milligram per kilogram of tramadol to avoid from shivering in females with pregnancy that underwent SA [9]. Dewitt [12] researched two mg/kg & Mathew [1] studied one mg/kg of tramadol to avoid and for treatment of this irritating problem. The main purpose of this study was to see the consequences of the tramadol for the prevention & treatment of the shivering after the caesarean surgery with SA.

METHODOLOGY:

Research committee of the hospital gave the approval for the research work. This was transverse research work based upon the random sampling. About 90 pregnant females were scheduled for caesarean delivery with SA from April 2017 to the end of February 2018. The pregnant females having hyperthyroidism & other heart problems were not the part of this research work. The grading of the shivering is given below;

0 = There is no shivering,
1 = Shivering in only face & head (mild shivering),
2 = Shivering in face & head with upper extremity (moderate shivering),
3 = Moderate shivering with upper extremities (severe shivering) [19].

Mercurial thermometer was in use for the measurement of the body temperature. The surgery room temperature was twenty-one to twenty-three centigrade. After the consent of the patients, they were separate into two groups. Ten milligram per kilogram ringer lactate 4 was provided to every patient & their important symptoms as heart neat rate & BP were recorded. SA injected in sitting position with the twenty-five-gauge needle. Different medical instruments were in utilization of vital symptoms as BP, heart beat rate & percentage of the saturation of the oxygen in arteries.

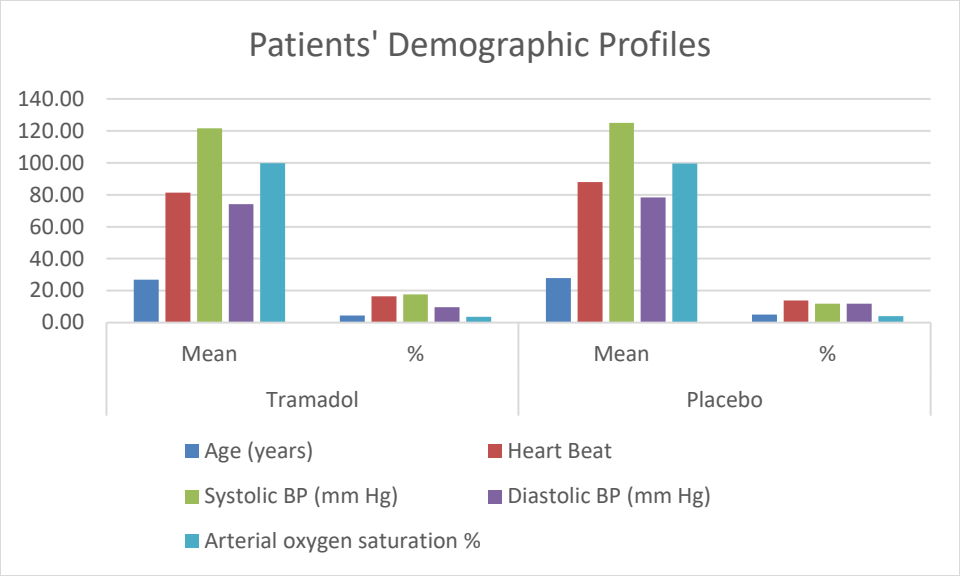
Shivering after surgery and its seriousness, hemodynamic alterations, vomiting & temperature of the body were assessed. The addicts of drugs & patients of other serious complications were excluded from the research work. Chi square test method was in use for the analysis of the collected information.

RESULTS:

Ninety pregnant females with ASA one or two separated into case group or control group were the participants of the case study. No important disparities were present among the patients of both groups on the basis of mean age, BP, temperature of the body & heart beat rate as mentioned in Table-1.

Table-I: Demographic data of patients

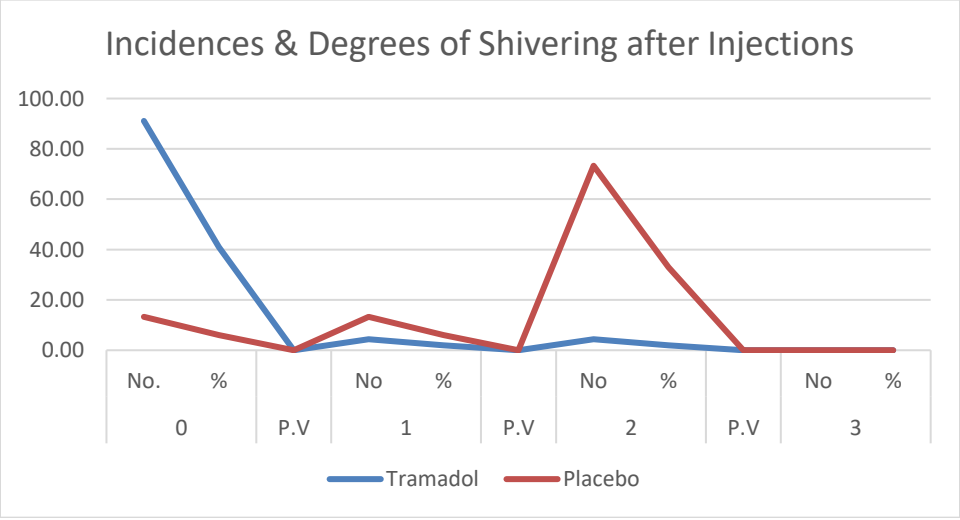
Parameter	Tramadol		Placebo	
	Mean	%	Mean	%
Age (years)	26.80	4.50	27.80	5.10
Heart Beat	81.40	16.50	88.00	13.90
Systolic BP (mm Hg)	121.50	17.70	125.00	11.90
Diastolic BP (mm Hg)	74.10	9.70	78.30	11.80
Arterial oxygen saturation %	99.68	3.54	99.57	4.00



About 4 patients from the case group & thirty-nine patients from control groups faced this problem of shivering, so, in this matter, there was an important disparity among both groups. Mild shivering was faced by two patients & medium shivering was present in two patients of the case group. Moderate shivering was present in thirty-three and mild shivering was present in six patients only. There was no case of severe shivering present in any group as described in Table-2.

Table-II: Incidence of shivering and different degrees of shivering after injection of tramadol and/ or placebo

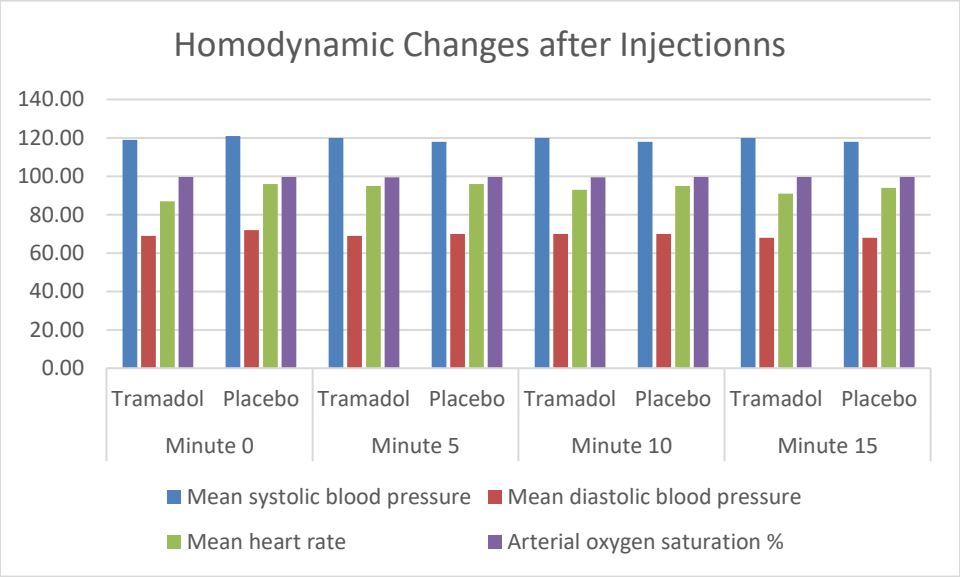
Group Shivering severity	0		P.V	1		P.V	2		P.V	3	
	No.	%		No	%		No	%		No	%
Tramadol	91.10	41.00	<0.0010	4.40	2.00	<0.0010	4.40	2.00	<0.0010	-	-
Placebo	13.30	6.00	-	13.30	6.00	-	73.30	33.00	-	-	-



The average heart beat rate in case group in fifth minute displayed an important increase & at tenth and fifteenth minutes did not display any alteration as mentioned in Table-3.

Table-III: Average of severity of homodynamic changes after injection of tramadol and/ or placebo

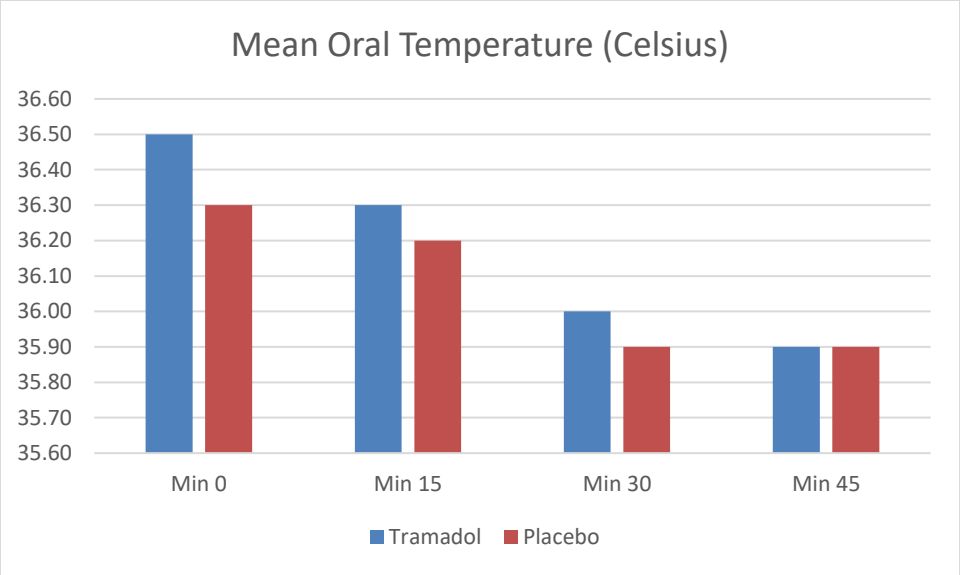
Time of measurement	Group	Mean systolic blood pressure	Mean diastolic blood pressure	Mean heart rate	Arterial oxygen saturation %
Minute 0	Tramadol	119.00	69.00	87.00	99.680
	Placebo	121.00	72.00	96.00	99.570
Minute 5	Tramadol	120.00	69.00	95.00	99.530
	Placebo	118.00	70.00	96.00	99.560
Minute 10	Tramadol	120.00	70.00	93.00	99.530
	Placebo	118.00	70.00	95.00	99.620
Minute 15	Tramadol	120.00	68.00	91.00	99.620
	Placebo	118.00	68.00	94.00	99.620



The average BP did not display any disparity as shown in Table-3. Significant statistical disparities as regards average oral temperature did not available among the patients of both groups as described in Table-4.

Table-IV: Mean oral temperature of the patients (in degrees Celsius)

Time Group	Min 0	Min 15	Min 30	Min 45
Tramadol	36.50	36.30	36.00	35.90
Placebo	36.30	36.20	35.90	35.90



DISCUSSION:

Shivering after surgery is very irritating problem. Pharmacologic medicines are the famous drugs for the avoidance & the treatment of the shivering. In this research work, the impacts of tramadol on avoidance of this issue were interrogated. In this research work, the occurrence of the shivering in the group of tramadol was about nine percent. Shivering was very low in the patients who utilized the tramadol. Billota [13] compared tramadol & nefopam with the drug of placebo for the prevention of shivering and found that nefopam was very effective & tramadol was second in effectiveness. Dewitt [15] compared tramadol of half, one & two milligram per kilogram with the medicine of placebo & found that tramadol is very effective in the treatment of the shivering after surgery.

The relations of kappa opioid & mechanisms of α 2 adrenoceptor functioning in synergistic way to create anti shivering impacts seems a probable elaboration [17, 18, 21-23]. Mildeh [5] compared tramadol with the meperidin and found that there is no effect of tramadol on the respiratory system & patients hemodynamic, whereas meperidin is the main reason of decrease in the tidal volume & low percentage of the saturation of the oxygen in arteries. Anchalee Techanivate [16] in his research work, interrogated whether twenty micrograms of intrathecally managed fentanyl has an impact on the seriousness & occurrence of the shivering. About 75% group of tramadol & hundred percent group of fentanyl gave response to the anti-shivering impacts of these medicines.

Talakoub [20] evaluated the effectiveness and the dangers of the tramadol for the prevention & treatment of shivering after SA in caesarean surgery. He contrasted the tramadol with the pethedin to avoid the shivering and found that tramadol is more effective and have minimum side effects as vomiting. Mathew [1] compared one mg/kg tramadol with the drug of placebo. The occurrence of shivering after surgery was four percent in the case group & forty-eight percent in the group of control. This outcome is similar to the findings of this study. Dewitte [12] compared three mg/kg Tramadol with the drug of placebo for at the time closing the new wound; there was no shivering in the patients of case group. Mathew [1] utilized one mg/kg tramadol for the treatment of shivering after surgery & no side effects were in observation. Many research works proved that [1, 8-10, 15, 20] there is no impact of tramadol on BP, temperature of the body & percentage of the saturation of oxygen in arteries.

CONCLUSION:

Tramadol was declared as secure and effectual in the avoidance and the treatment of the shivering after spinal anaesthesia. There are no side effects of this medicine. We are in favour of this medicine for the avoidance of the shivering after SA in caesarean section.

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