

Table 1. Basic characteristics of the two groups

Variables	Type of tramadol administration		P-value
	Intravenous tramadol (n=43)	Intrathecal tramadol (n=43)	
Age (years), mean \pm SD	45.50 \pm 11.53	48.07 \pm 13.33	0.10 ^a
Gender, n (%)			
Male	24 (56.5)	26 (60.4)	0.66 ^b
Female	19 (43.5)	17 (39.6)	
Weight (Kg), mean \pm SD	73.9 \pm 12.3	79.3 \pm 11.6	0.05 ^a
Height (m), mean \pm SD	168.1 \pm 1.9	169.5 \pm 1.07	0.06 ^a
BMI (kg/m²), mean \pm SD	29.37 \pm 4.64	30.53 \pm 5.37	0.26 ^a
History of chronic illness			
Absent	25 (58.1)	29 (67.5)	0.37 ^b
Present	18 (41.8)	14 (32.5)	

^a p-values are based on Mann-Whitney U test. Statistical significance at P < 0.05

^b p-values are based on Chi-square test. Statistical significance at P < 0.05

Table 1 shows basic characteristics of the two groups. There was no statistically significant difference between patients in both groups.

Table 2

Comparison between the two groups in regard to intraoperative shivering

Variables	Type of tramadol administration		p-value
	Intravenous tramadol (n=43)	Intrathecal tramadol (n=43)	
Incidence of shivering	N (%)	N (%)	
Absent	35 (81.4)	41 (95.4)	0.047^{b*}
present	8 (18.6)	2 (4.6)	
Shivering score	N (%) (n= 8)	N (%) (n= 2)	
0 – None	0 (0)	0 (0)	0.88 ^a
1 – mild	2 (4.65)	1 (2.3)	
2 – moderate	4 (9.3)	0 (0)	
3 – severe	2 (4.65)	1 (2.3)	

^a p-values are based on Fisher exact test. ^b p-values are based on chi-square test.

*Statistical significance as P < 0.05

Table (2): shows that patients on intra-theal tramadol was statistically significant associated with lower incidence of intraoperative shivering (p=0.047).

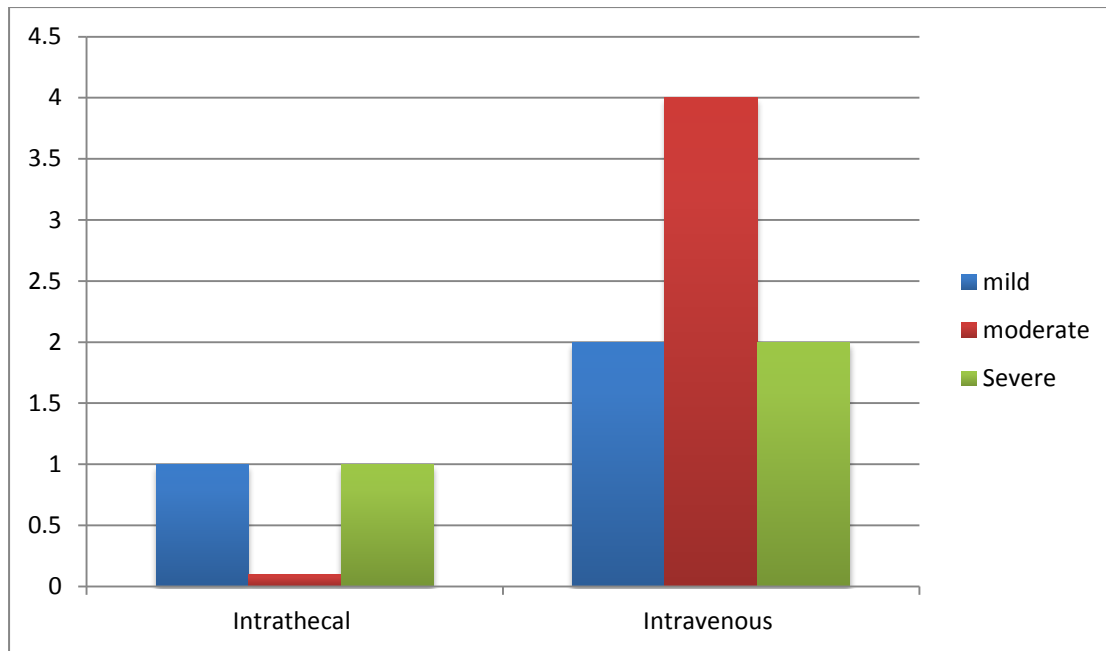


Figure 2: Intraoperative Shivering grade among the groups

Table 3: Comparison between the two groups in regard to intraoperative axillary temperature

intraoperative axillary temperature	Type of tramadol administration		p-value
	Intravenous tramadol (n=43)	Intrathecal tramadol (n=43)	
Baseline	37.4 ± 0.69	37.5 ± 0.57	0.135 ^a
At induction	37.3 ± 0.6	37.2 ± 0.6	0.130 ^a
Temp at 5 min	37.5 ± 0.1	37.2 ± 0.7	0.21 ^a
Temp at 10 min	37.4 ± 3.5	37.5 ± 0.57	0.135 ^a
Temp at 15 min	37.1 ± 0.1	37 ± 0.1	0.99^a
Temp at 20 min	36 ± 1.2	36.1 ± 1.2	0.99^a
Temp at 25 min	36 ± 0.1	36.1 ± 0.1	0.99^a
Temp at 30 min	36.3 ± 2.1	36.46 ± 0.01	0.99^a
Temp at 45 min	36 ± 0.34	36.2 ± 1.4	0.83^a
Temp at 60 min	36 ± 1.2	36.1 ± 1.2	0.99^a
Temp at 75 min	36 ± 0.1	36.1 ± 0.1	0.99^a
Temp at 90 min	35.3 ± 1.4	35.4 ± 1.4	0.99^a
Temp at 105 min	35.1 ± 0.4	35.2 ± 0.24	0.99^a
Temp at 120 min	35 ± 1.2	35.1 ± 0.1	0.99^a
At the end of surgery	35 ± 0.1	35.1 ± 0.1	0.87^a

^a p-values are based on Mann-Whitney U test. *Statistical significance as P < 0.05

Table 3 shows that there was no statistically significant difference between patients of both groups in terms of their axillary temperature all over the procedure. While, it is observed that intraoperative temperature declines with the time till the end of surgery in both groups.

Table 4: Comparison between the two groups in regard to postoperative temperature

Variables	Type of tramadol administration		p-value
	Intravenous tramadol (n=43)	Intrathecal tramadol (n=43)	
0.5 hr. after operation	37.4 ± 0.14	37.4 ± 0.10	0.287 ^a
1 hr. after operation	37.3 ± 0.11	37.3 ± 0.12	0.589 ^a
2 hrs. after operation	37.4 ± 0.14	37.4 ± 0.10	0.609 ^a
4 hrs. after operation	37.4 ± 0.14	37.4 ± 0.10	0.233 ^a
6 hrs. after operation	37.39 ± 0.13	37 ± 0.10	0.854 ^a
8 hrs. after operation	37.41 ± 1.5	37.4 ± 0.12	0.101 ^a
12 hrs. after operation	37.41 ± 0.14	37.41 ± 0.09	0.934 ^a
24 hrs. after operation	37.41 ± 0.14	37.4 ± 0.10	0.287 ^a

^a p-values are based on Mann-Whitney U test. Statistical significance at P < 0.05

Table 4 shows that there was no statistically significant difference between patients of both groups in terms of their axillary temperature postoperatively.

Table 5: Incidence of postoperative shivering in both groups.

Variables	Type of tramadol administration		p-value
	Intravenous tramadol (n=43)	Intrathecal tramadol (n=43)	
Incidence of postop. shivering	N (%)	N (%)	
Absent	34 (79)	40 (93)	0.045^{a*}
present	9 (21)	3 (7)	
Shivering score	N (%) (n= 9)	N (%) (n= 3)	
0 – None	0 (0)	0 (0)	0.71 ^a
1 – mild	5 (11.66)	2 (4.66)	
2 – moderate	3 (7)	1 (2.33)	
3 – severe	1 (2.33)	0 (4.66)	

^a p-values are based on Fisher exact test. P-values are based on chi-square test. *Statistical significance as P < 0.05

Table 5 shows that postoperative incidence of shivering was more in intravenous group than in intrathecal group

Table 6: Post-operative complications between the two groups

Variables	Type of tramadol administration		p-value
	Intravenous tramadol (n=43)	Intrathecal tramadol (n=43)	
Nausea			
Present	12 (27.9)	4 (9.3)	0.026^{b*}
Absent	31 (72.1)	39 (90.7)	
Vomiting			
Present	4 (9.3)	2 (4.6)	0.39 ^b
Absent	39 (90.7)	41 (95.4)	
Hypotension			
Present	2 (4.6)	3 (7)	0.21 ^b
Absent	41 (95.4)	40 (93)	

^b p-values are based on Chi-square test. Statistical significance at $P < 0.05$.

Table 6 shows that the most common reported complication in the both groups were nausea and vomiting. It was found that patients who administered intra-thecal tramadol had significantly lower incidence of nausea than intravenous tramadol group ($p=0.026$). Moreover, there was no statistically significant difference in the incidence of vomiting or hypotension ($p=0.39, 0.21$ respectively).