

RESULTS

Enrollment

Assessed for eligibility (n=70)

Excluded (n= 12)
♦ Not meeting inclusion criteria (n=7)
♦ Declined to participate (n=5)

Randomized (n= 58)

Allocation

E group (n= 29): 0.5 ml/kg of 0.25%
bupivacaine was injected for Epidural
block

QL group (n= 29): 0.5 ml/kg of 0.25%
bupivacaine was injected for
Quadratus lumborum block

Follow-Up

Lost follow up (n=0)

Lost follow up (n=0)

Analysis

Analysed (n= 29)
Excluded from analysis (n=0)

Analysed (n= 29)
Excluded from analysis (n=0)

Figure (1): Consort flow diagram showing recruitment of patients in the study.

-E :Epidural , QL:Quadratus lumborum.

The mean age of the included cases was 4.7 years in the two study groups. Girls represented 58.6% and 51.7% of patients in the E and QL groups respectively, while the remaining ratio was occupied by males. The same previous groups had mean weight values of 15.5 and 15.4 kg respectively.

The majority of the included patients has an ASA class I, as they formed 93.1% and 100% of the E and QL groups respectively. The remaining cases were ASA class II. Regarding history of previous abdominal surgeries, appendectomy was the most common one, followed by abdominal mass excision. Other surgeries included nephrectomy, colostomy closure, incisional hernia repair, and splenectomy. All of the previous demographic data showed no significant difference between the two groups ($p < 0.5$).

The duration of surgeries had mean values of 64.26 and 67.06 minutes, whereas anesthetic duration had mean values of 77.6 and 77.4 minutes in the E and QL groups respectively, which showed no significant difference on statistical analysis.

Table (1): Characteristics of patients and surgery for both groups.

Variable	E group (n=29)	QL group (n=29)	P-value
Age (years)	4.7 ± 1.3	4.7 ± 1.2	0.862
Sex			
-Male	12 (41.4%)	14 (48.3%)	0.354
-Female	17 (58.6%)	15 (51.7%)	
Weight (Kg)	15.5 ± 2.9	15.4 ± 2.6	0.464
ASA score			
I	27 (93.1%)	29 (100%)	0.642
II	2 (6.9%)	0 (0%)	
Type of surgery			
Appendectomy	11 (37.9%)	12 (41.4%)	0.892
Nephrectomy	3 (10.3%)	3 (10.3%)	
Excision of abdominal mass	8 (27.6%)	7 (24.1%)	
Closure colostomy	2 (6.9%)	3 (10.3%)	
Incisional hernia repair	2 (6.9%)	2 (6.9%)	
Splenectomy	3 (10.3%)	2 (6.9%)	
Duration of operation (min)	64.26 ± 4.11	67.08 ± 5.15	0.514
Duration of anesthesia (min)	77.6 ± 5.8	77.4 ± 3.8	0.486

Data are expressed as mean ± SD
Categorical data are expressed as number (percent within group)
E :Epidural,QL :Quadratus lumborum

The duration of analgesia showed no significant difference between the two groups (9.9 and 11.02 hours in the E and QL groups respectively – p = 0.212). Likewise, total fentanyl consumption showed no significant difference between the same groups (38.67 and 36.47 ug respectively – p = 0.246). Only three (10.3%) and two patients (6.9%) required a rescue analgesic in the E group and QL group respectively, with no statistically significant difference between the two groups (p = 0.378).

Table (2): Assessed parameters for post-operative analgesia in the two study groups.

Variable	E group (n=29)	QL group (n=29)	P-value
Duration of analgesia (hours)	9.9 ± 1.58	11.02 ± 1.74	0.212
Total dose of Fentanyl (ug)	38.67 ± 5.02	36.47 ± 5.13	0.246
Number of patients without need of rescue analgesia	3(10.3%)	2(6.9%)	0.378

Continuous data expressed as Number(%)

*: significant (p< 0.05)

E:Epidural,QL:Quadratus lumborum

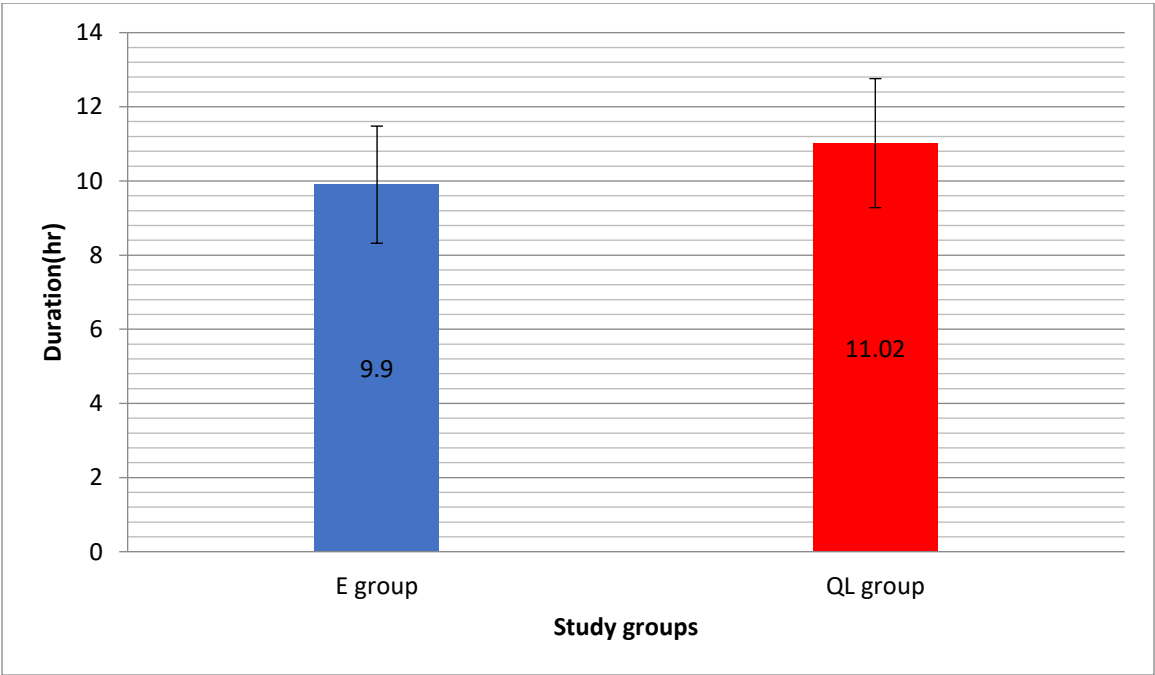


Figure (): Duration of analgesia (hours) in the two study groups

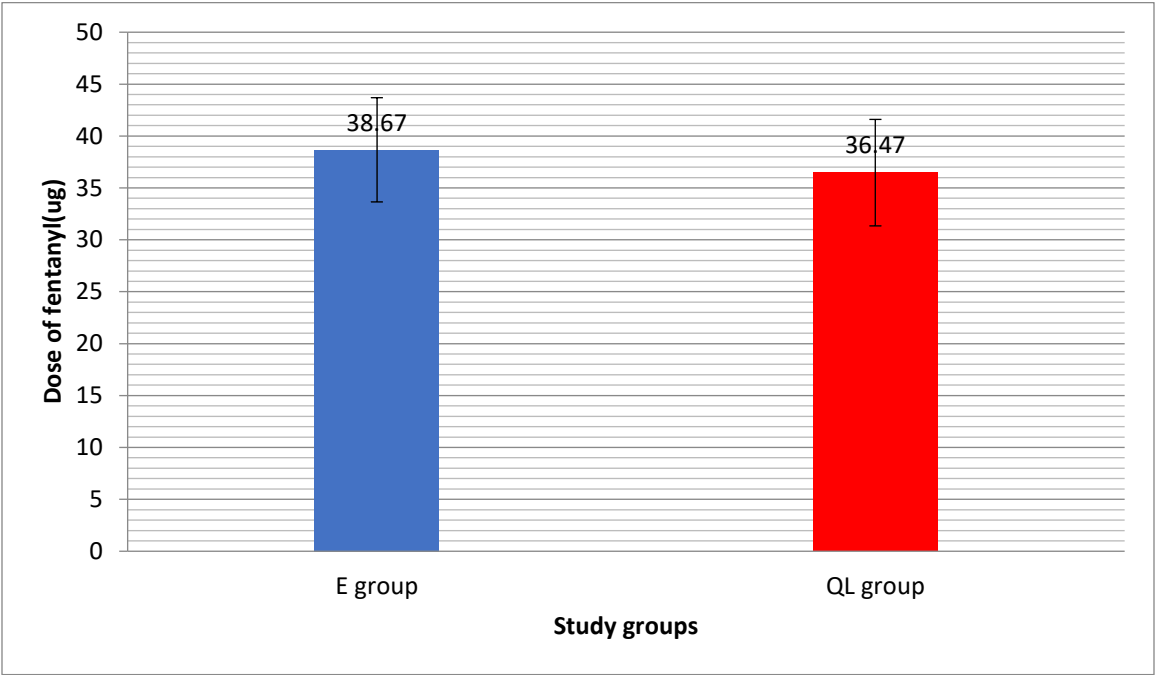
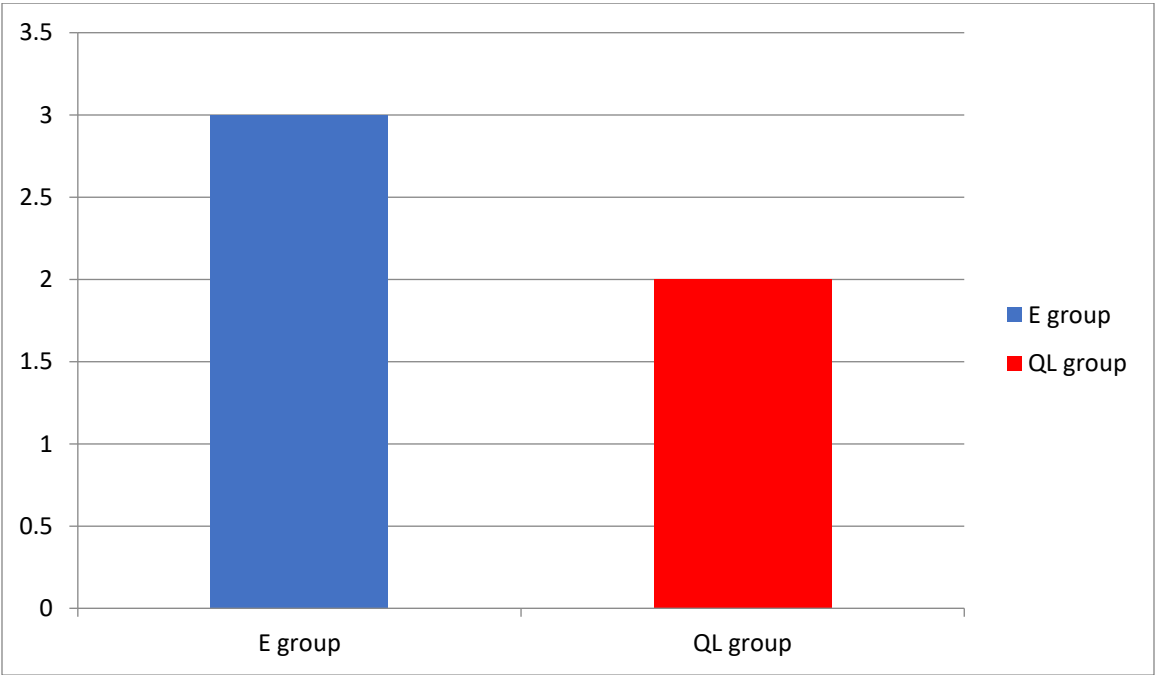


Figure (): Total dose of Fentanyl (ug) in the two study groups



Patients without need of rescue analgesia in the two study groups

All recorded intraoperative, PACU, and post-operative heart rates showed no significant difference between the two study groups ($p > 0.05$).

Table (3): Patients' peri-operative heart rate values (beat/min.) of the studied groups

Hear rate (Beat\minute)		E group (n=29)	QL group (n=29)	P-value
Basal		105.7 ± 12.4	103.5 ± 10.2	0.464
Intraoperative	10 minutes	110.8 ± 11.1	106 ± 12.5	0.128
	20 minutes	116.5 ± 9.9	119.2 ± 14.2	0.405
	30 minutes	113.7 ± 11.1	110.5 ± 13.4	0.326
	45 minutes	115.3 ± 6.6	114 ± 8.6	0.521
	60 minutes	112.1 ± 7.4	113.4 ± 9.1	0.553
	75 minutes	114.8 ± 8.5	116.5 ± 7.9	0.433
	105 minutes	118.7 ± 9	117.6 ± 11.9	0.693
	120 minutes	118.5 ± 9.7	120.9 ± 12.1	0.408
PACU		116.4 ± 7.3	117.3 ± 6.4	0.620
	15 minutes	117.9 ± 10.1	118.3 ± 12.5	0.894
	30 minutes	116.7 ± 10.4	114.5 ± 13.1	0.482
	45 minutes	120.6 ± 11	119.5 ± 13.2	0.732
	60 minutes	118.3 ± 11.3	119.6 ± 13.5	0.692
	90 minutes	118.8 ± 11.2	123.7 ± 13.2	0.134
	120 minutes	121.1 ± 10.8	122.4 ± 12.8	0.678

Continuous data expressed as mean ± SD.

∗: significant ($p < 0.05$)

E: Epidural, QL: Quadratus lumborum.

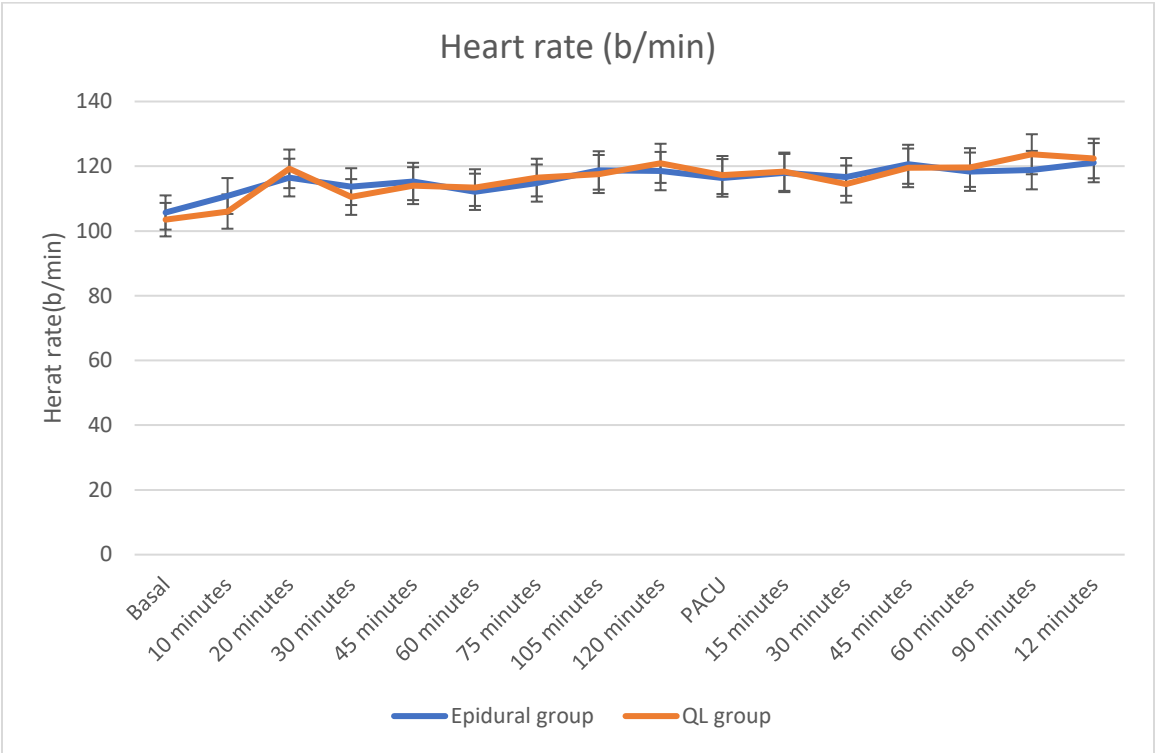


Figure (): Follow up of heart rate (Basal, intraoperative, PACU and postoperative) in the two study groups

E:Epidural,QL:Quadratus lumborum.

Perioperative MAP recordings were statistically comparable between the two study groups ($p > 0.05$).

Table (4): Patients' **peri-operative** values of mean arterial blood pressure (MAP) (mmHg) of the studied groups.

MAP (mmHg)		E group (n=29)	QL group (n=29)	P-value
Intraoperative	Basal	74.5 ± 8.9	75.3 ± 5.5	0.682
	10 minutes	72.8 ± 7.9	73.8 ± 6.7	0.167
	20 minutes	73.1 ± 6.8	71 ± 4.7	0.177
	30 minutes	73.4 ± 5.6	74.3 ± 4.8	0.514
	45 minutes	71.2 ± 4.7	72.6 ± 3.6	0.208
	60 minutes	71.58 ± 5.3	73.88 ± 3.4	0.054
	75 minutes	75.81 ± 5.2	74.96 ± 4.4	0.504
	105 minutes	72.6 ± 6.7	73.2 ± 4.4	0.688
	120 minutes	72.9 ± 6.6	74.5 ± 4.7	0.292
PACU		74.4 ± 6.4	75.2 ± 5.2	0.603
Postoperative	15 minutes	72 ± 5.8	72.2 ± 4	0.879
	30 minutes	75.9 ± 5.9	73.3 ± 6.1	0.105
	45 minutes	74.8 ± 5.8	72.7 ± 3.9	0.111
	60 minutes	73.8 ± 5.3	72.3 ± 3.9	0.225
	90 minutes	73.4 ± 5.9	72.6 ± 3.7	0.539
	120 minutes	73.2 ± 6	72.3 ± 3.9	0.501

Continuous data expressed as mean ± SD.
E:Epidural ,QL:Quadratus lumborum.

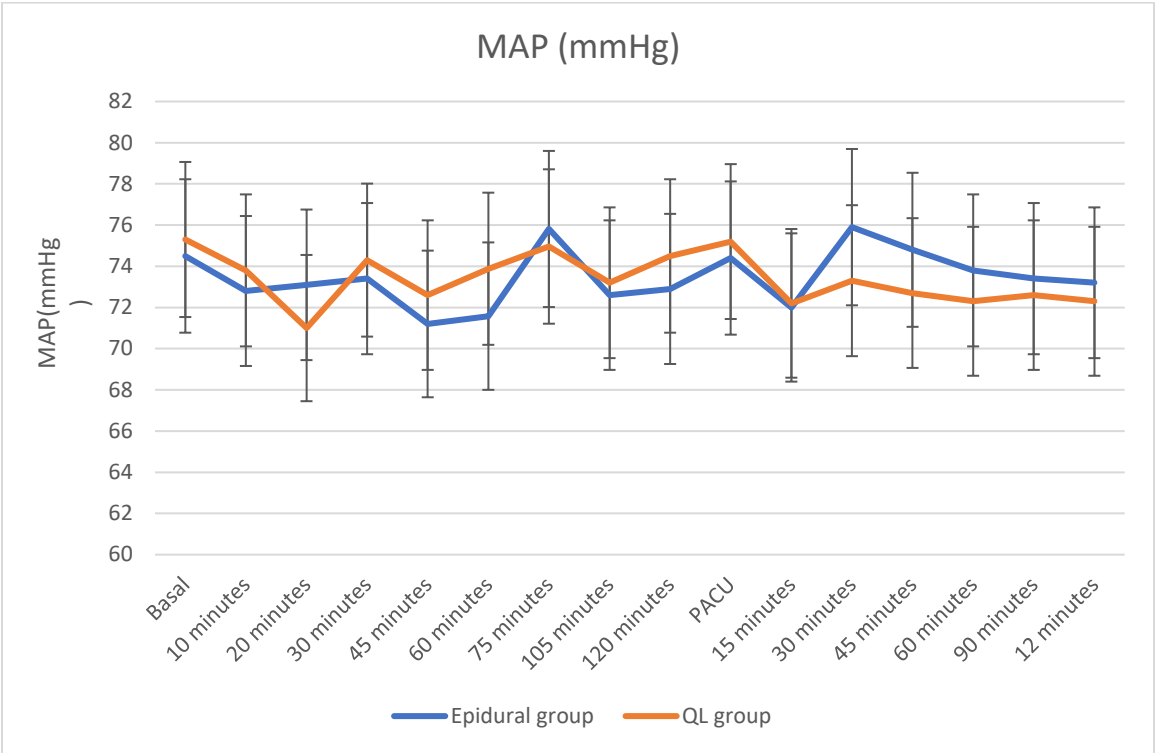


Figure (): Follow up of MAP (Basal, intraoperative, PACU and postoperative) in the two study groups

Starting from PACU and for the initial 24 hours following operation, the recorded CHEOPS score values showed no significant difference between the two study groups.

Table (5): Values of CHEOPS score of patients in the two study groups.

Variable	E group (n=29)	QL group (n=29)	P-value
0 hr (At PACU)	4.10 ± 0.3	4.07 ± 0.3	0.557
6 hr	5.03 ± 1.5	5 ± 1.9	0.542
12 hr	5.03 ± 1.4	4.96 ± 1.4	0.226
18 hr	4.70 ± 1.5	4.53 ± 1.2	0.145
24 hr	4.13 ± 0.3	4.13 ± 0.1	0.902

Data are expressed as mean±SD.

*: significant (*p*< 0.05)

E:Epidural,*QL*:Quadratus lumborum.

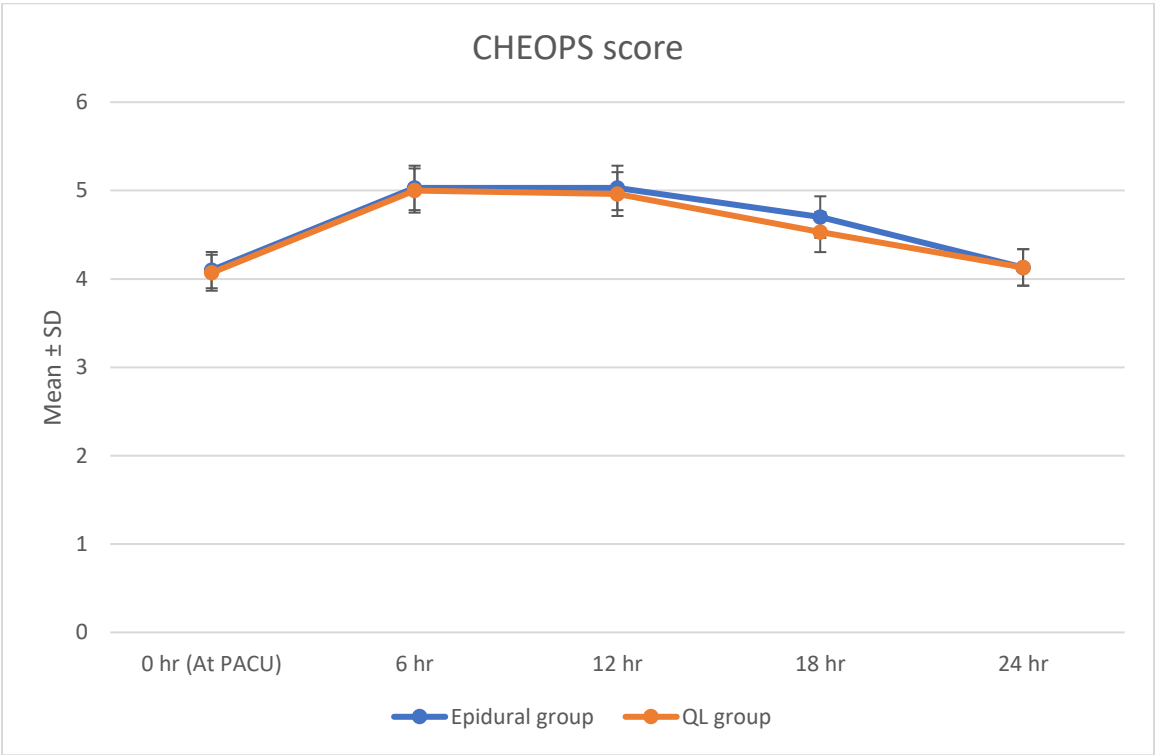


Figure (): Follow up of CHEOPS score in the two study groups

Generally, patient satisfaction showed no significant difference on statistical analysis ($p = 0.086$). However, 82.6% of QL group patients were satisfied compared to only 72.4% of cases in the E group.

As regard post-operative complications, vomiting was reported by 6.9% and 10.3% in the E and QL groups respectively. Dural puncture was encountered in only 6.9% of patients in the E group (6.9%). No significant difference was noted between the groups regarding the incidence of complications ($p = 0.146$).

Table (6): Satisfaction of the cases and recorded complications within the study groups.

Variable	E group (n=29)	QL group (n=29)	P-value
Satisfaction			
-Satisfied	21 (72.4%)	24 (82.6%)	0.086
-Not satisfied	8 (27.6%)	5 (17.4%)	
Complications			
Vomiting	2 (6.9%)	3 (10.3%)	0.146
Dural puncture	2 (6.9%)	0 (0%)	

Data are expressed as Number (%)

*: significant ($p < 0.05$)

E:Epidural,QL:Quadratus lumborum.