

RESULTS

Patients demographic data:

There was no statistically significant difference among the three groups regarding the age, weight, or the duration of the surgery (table6).

Table(6) :Demographic data and duration of surgery(mean \pm SD).

GROUP	AGE/YEAR	WEIGHT /KG	DURATION OF OPERATION /MINUTES
GROUP I	31.40 \pm 6.41	71.50 \pm 8.09	140.55 \pm 35.54
GROUP II	30.70 \pm 6.44	71.00 \pm 5.98	139.00 \pm 26.70
GROUP III	30.10 \pm 4.41	70.50 \pm 6.62	140.50 \pm 26.54

Intraoperative period:

Each reading, systolic, diastolic, mean blood pressure and heart rate, was compared with the same reading in the other 2 groups. It was found that these five readings in group I show statistically significant difference ($P < 0.05$) when compared with the the same readings in the other 2 groups. Group II and III exhibit more hemodynamic stability (tables 7,8,19,10 and fig.5,6,7,8).

Table(7): Systolic blood pressure/mmHg(mean±SD) .

GROUP	READING 1	READING 2	READING 3	READING 4	READING 5
GROUP I	133.3±10.7*	128.5±12.3*	129.0±12.9*	126.5±12.3*	121.5±14.2*
GROUP II	125.5±8.7	120.3±9.9	111.7±11.2	117.5±11.6	115.2±10.5
GROUP III	102.3±8.7	103.3±10.1	107.9±9.8	98.9±6.9	93.5±9.10

(*)=Statistically significant compared to other groups.

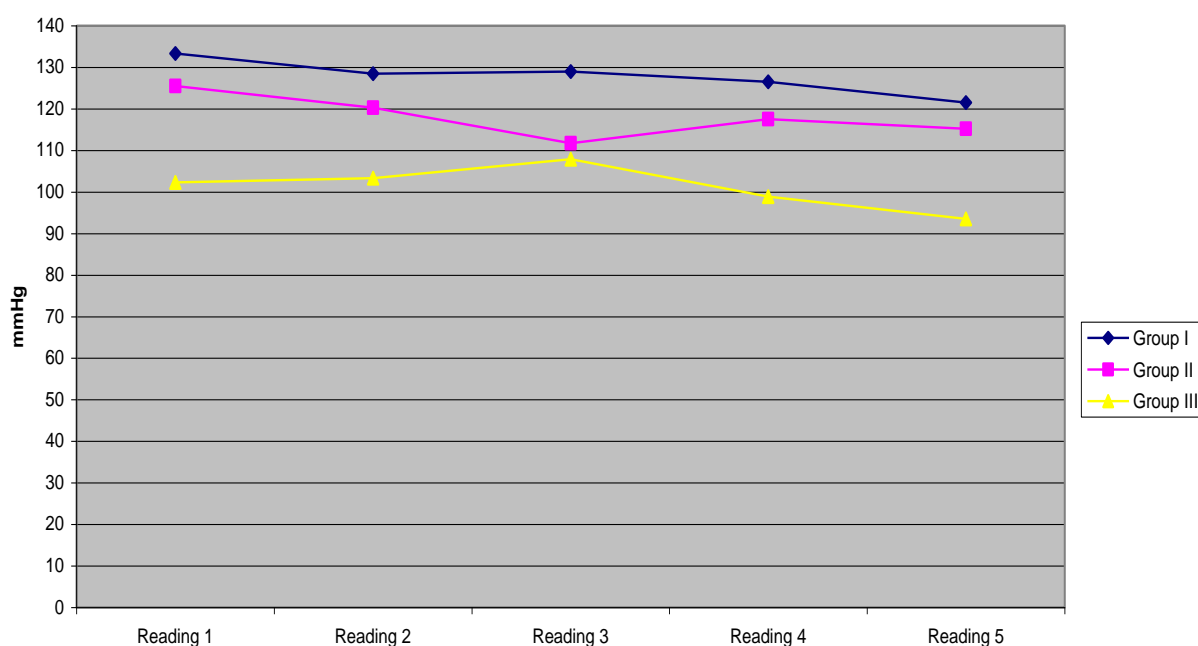


Figure (5): Mean systolic blood pressure (mmHg) among the study groups over the intraoperative study period.

Table(8): Diastolic blood pressure/mmHg(mean±SD).

GROUP	READING 1	READING 2	READING 3	READING 4	READING 5
GROUP I	69.9±8.1*	72.2±6.5*	80.2±9.8*	79.7±6.4*	75.6±7.3*
GROUP II	67.6±7.7	68.5±5.6	73.5±7.5	75.2±5.6	73.45±4.6
GROUP III	63.9±6.2	63.5±8.5	65.4±6.4	68.2±4.2	65.1±4.1

(*)=Statistically significant compared to other groups.

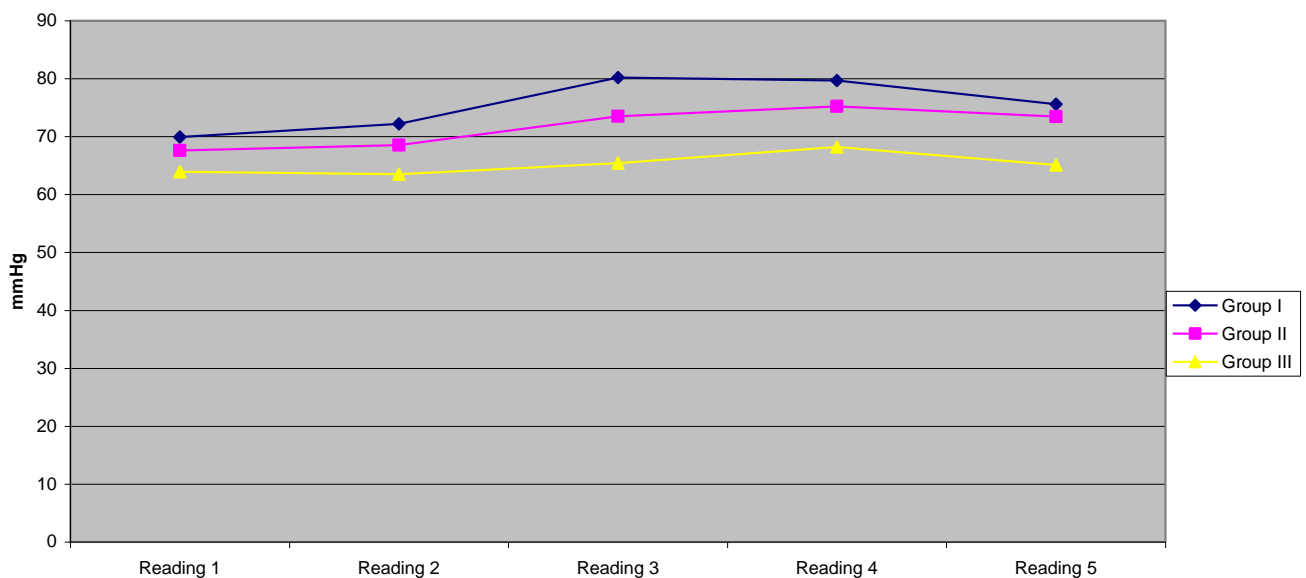


Figure (6): Mean diastolic blood pressure (mmHg) among the study groups over the intraoperative period.

Table(9):Mean blood pressure/mmHg(mean±SD).

GROUP	READING 1	READING 2	READING 3	READING 4	READING 5
GROUP I	81.3±7.6*	85.10±8.2*	90.2±10.2*	94.5±8.8*	88.6±10.2*
GROUP II	75.9±9.9	75.4±7.2	80.80±11.3	82.2±8.2	80.20±5.8
GROUP III	74.4±4.5	72.3±1.5	71.2±5.1	73.54±5.44	74.2±2.3

(*)=Statistically significant compared to other groups .

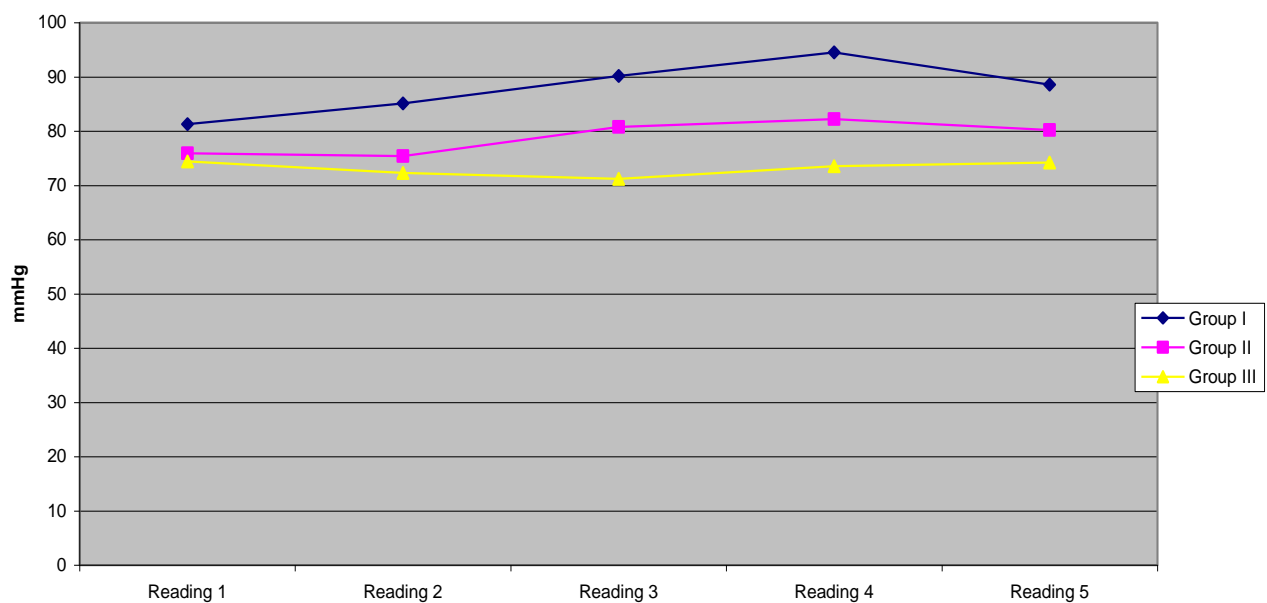


Figure (7): Mean arterial blood pressure (mmHg) among the study groups over the intraoperative period.

Table(10):Heart rate (beat/min.)(mean \pm SD)

GROUP	READING 1	READING 2	READING 3	READING 4	READING 5
GROUP I	70.3 \pm 7.7*	73.5 \pm 12.3*	83.2 \pm 5.5*	86.5 \pm 5.5*	77.5 \pm 9.5*
GROUP II	68.5 \pm 5.5	70.2 \pm 8.5	74.5 \pm 5.2	75.8 \pm 5.4	74.5 \pm 5.2
GROUP III	64.3 \pm 3.7	66.3 \pm 4.3	69.3 \pm 4.8	70.5 \pm 5.1	72.2 \pm 2.5

(*)=Statistically significant compared to other groups .

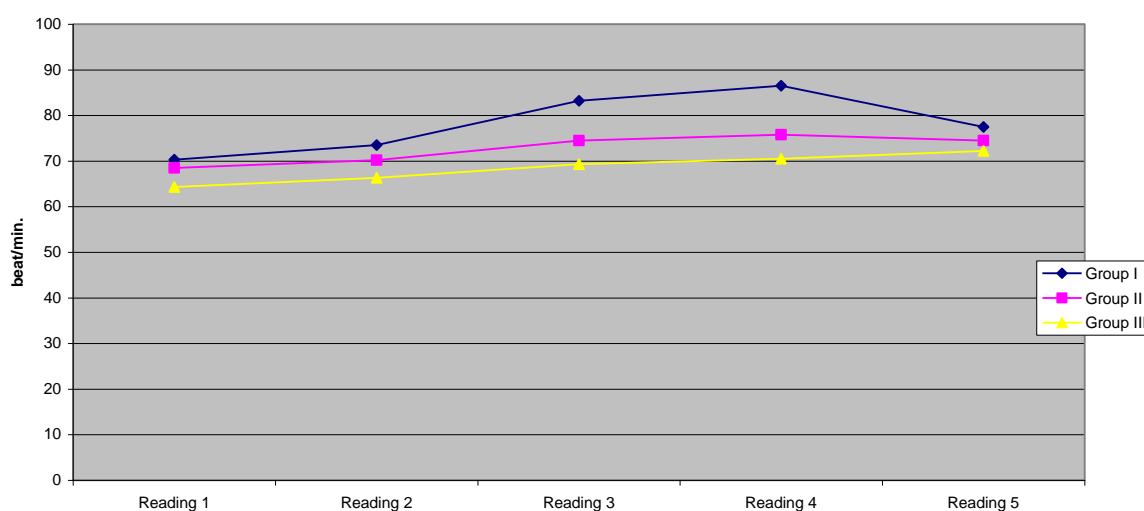


Figure (8):Mean heart rate (beat/min.) among the study groups over the intraoperative period.

Postoperative period:

Visual analogue score(VAS) :

The lowest scores were encountered in group III while the highest scores were found in groups I & II during the first 24 hours after surgery. The difference among the three groups was statistically highly significant ($p < 0.001$) as seen in table 11 and fig. 9.

Table(11): Visual analogue score (mean \pm SD).

GROUP	CONTROL	3HOURS P.O	6HOURS P.O	9HOURS P.O	12HOURS P.O	24HOURS P.O
GROUP I	1.10 \pm 0.75*	2.10 \pm 0.20*	5.50 \pm 1.25*	5.75 \pm 1.75*	5.55 \pm 1.55*	6.55 \pm 1.55*
GROUP II	1.20 \pm 0.35*	2.90 \pm 0.95*	6.20 \pm .55 *	6.26 \pm 2.35*	6.25 \pm 2.55*	6.75 \pm 1.55*
GROUP III	1.30 \pm 0.20	0.00 \pm 0.0	0.00 \pm 0.0	1.20 \pm 0.38	1.30 \pm 0.54	3.5 \pm 1.20

(*)statistically significant when compared with the other groups.

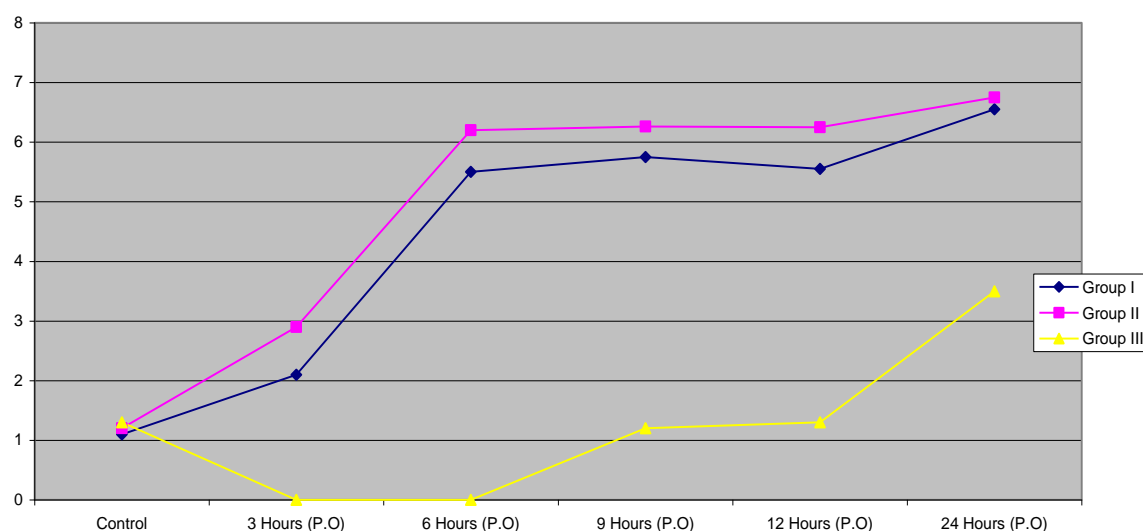


Figure (9): Mean visual analogue scale (VAS) among the study groups over the postoperative period.

Time to the first request for postoperative analgesia:

Mean time to the first request for analgesia postoperatively among the three studied groups was highly statistically significant difference ($P < 0.001$). The longest time encountered (17 ± 3.8 hrs) in group III while the shortest time was found in group II (3.7 ± 1.1 hrs) and group I (4.6 ± 2.2) as seen in table 12 and fig. 10. Mepridine 50mg slowly i.v was given to the patient if pain score is >5 . It was noticed that groups I, II consumed much amount of analgesia than group III. There were significantly more patients requiring additional analgesia after surgery and during the first 24 hrs postoperative in group I & II compared with group III ($P < 0.001$). The total amount of mepridine consumed were 200 mg in group I, 300 mg in group II while only 50 mg was administered in group III.

Table(12): Time to 1 st request for postoperative analgesia /hours (mean \pm SD).

GROUP	TIME TO FIRST REQUEST FOR ANALGESIA/HOURS
Group I	$4.6 \pm 2.2^{**}$
Group II	$3.7 \pm 1.1^{**}$
Group III	17 ± 3.8

(*)=Statistically significant compared to other groups

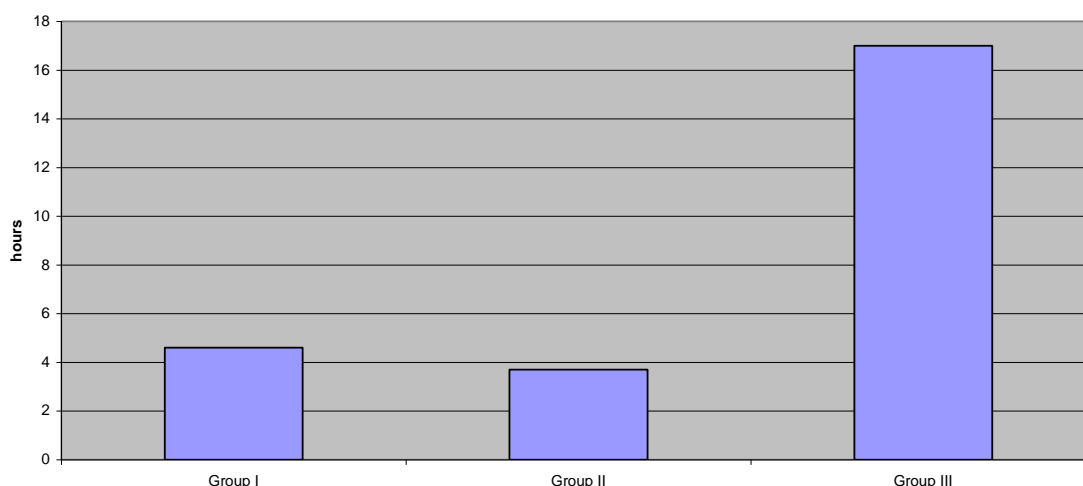


Figure (10): Mean Time to first request for postoperative analgesia (hours) among the study groups over the postoperative period.

Hemodynamic parameters :

The systolic, diastolic ,mean blood Pressure and heart rate as well as the respiratory rate were recorded at 3, 6, 9,12 and 24 hours postoperatively . Each reading was compared with the control reading obtained immediately postoperatively and also compared with the same reading across the other study groups.It was found that group III showed more cardiovascular and respiratory stability when compared with group I and II(P <0.05) as seen in (tables13,14,15,16,17 and fig.11,12,13,14,15).

Table(13): Systolic blood pressure /mmHg(mean±SD).

GROUP	CONTROL	3HOURS P.O	6HOURS P.O	9HOURS P.O	12HOURS P.O	24HOURS P.O
GROUP I	129.6±10. 2*	134.2±7.1*	130.2±4.7*	128.2±9.7*	129.2±7.7*	138.2±8.7*
GROUP II	125.4±12.2*	128.5±6.5*	129.2±7.5*	131.2±9.7*	132.2±6.9*	124.2±10.0
GROUP III	115.3±8.3	109.5±6.4	107.4±9.9	110.5±11.7	118.2±9.8	125.2±5.3

(*)=Statistically significant compared to other groups

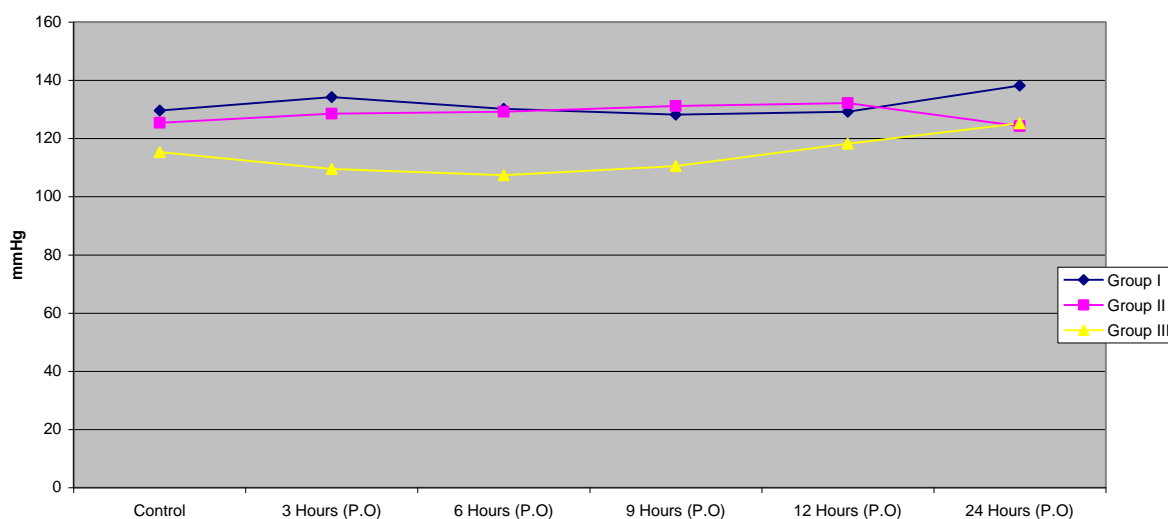


Figure (11): Mean systolic blood pressure (mmHg) among the study groups over the postoperative period.

Table(14): Diastolic blood pressure/mmHg(mean±SD).

GROUP	CONTROL	3HOURS P.O	6HOURS P.O	9HOURS P.O	12HOURS P.O	24 HOURS P.O
GROUP I	89.1±9.1*	85.2±9.7*	88.2±8.8*	94.2±9.9*	90.2±5.7*	84.2±7.6
GROUP II	77.6±6.4*	74.9±4.8*	84.2±6.9*	87.2±6.97*	88.2±7.7*	85.2±5.7
GROUP III	66.9±5.4	65.6±6.7	69.4±5.4	74.5±5.6	76.3±6.9	84.2±6.67

(*)=Statistically significant compared to other groups

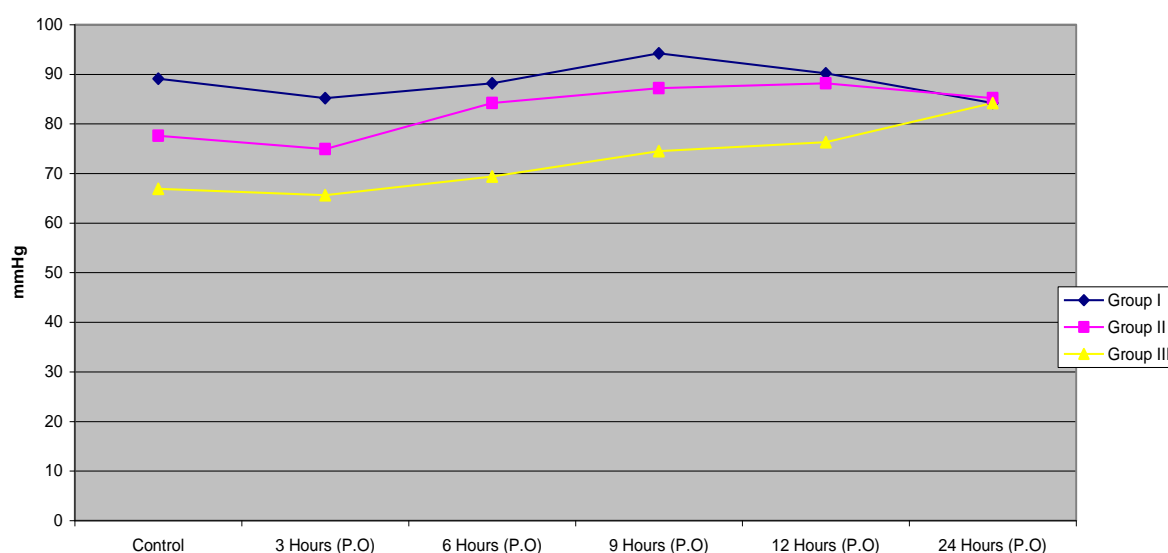


Figure (12): Mean diastolic blood pressure (mmHg) among the study groups over the postoperative period.

Table(15):Mean blood pressure/mmHg(mean±SD).

GROUP	CONTRO L	3HOURS P.O	6HOURS P.O	9HOURS P.O	12HOURS P.O	24 HOURS P.O
GROUP I	91.5±8.*	99.2±9.8*	100.2±6.4*	120.2±6.6*	117.2±6.1*	100.2±6.9
GROUP II	85.7±5.8	89.6±9.4	99.2±6.5	99.2±6.87	109.2±5.8	99.2±3.8
GROUP III	72.2±6.6	73.8±7.5	80.3±9.3	78.2±4.9	82.0±9.9	99.2±6.8

(*)=Statistically significant compared to other groups

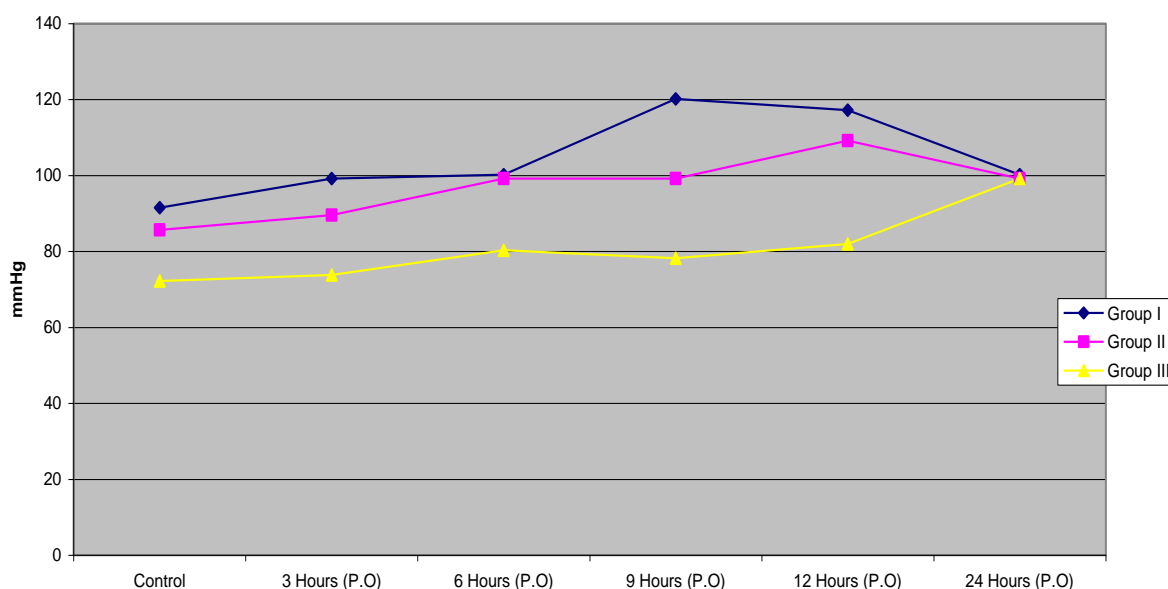


Figure (13): Mean mean blood pressure (mmHg) among the study groups over the postoperative period.

Table(16):Heart rate beat/min.(mean±SD).

GROUP	CONTROL	3HOURS P.O	6HOURS P.O	9HOURS P.O	12HOURS P.O	24HOURS P.O
GROUP I	79.9±10.4*	88.2±7.4*	83.2±7.0*	88.2±6.8*	84.2±5.6*	80.2±5.8
GROUP II	77.7±5.7	79.9±6.5	84.2±8.7*	84.2±5.5*	85.2±4.7*	82.2±7.7
GROUP III	68.6±8.5	66.5±4.6	68.8±4.7	71.54±5.6	71.5±4.2	73.2±7.5

(*)=Statistically significant compared to other groups

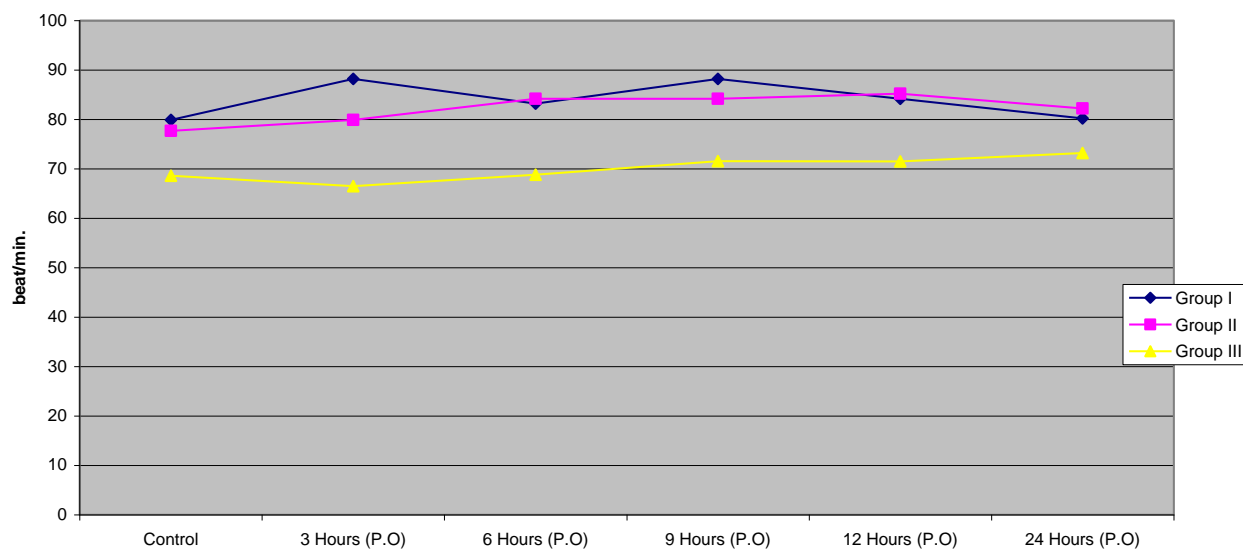


Figure (14): Mean heart rate (beat/min.) among the study groups over the postoperative period.

Table(17):Respiratory rate(breath/min.)(mean±SD).

GROUP	CONTR OL	3HOURS P.O	6 HOURS P.O	9HOURS P.O	12HOUR S P.O	24 HOURS P.O
GROUP I	15.30± 0.6*	15.40± 1.98*	16.00± 0.68*	16.90± 0.95*	15.50± 1.18*	15.90± 1.00
GROUP II	15.00± 0.98	15.40± 2.75	15..00± 1..98	15.00± 0.55	15.90± 1.00	15.90± 0.98
GROUP III	14.32±. 55	14.32± 0.55	14.98± 1.22	14.90± 0.98	14.22± 0.75	16.90± 0.58

(*)=Statistically significant compared to other groups

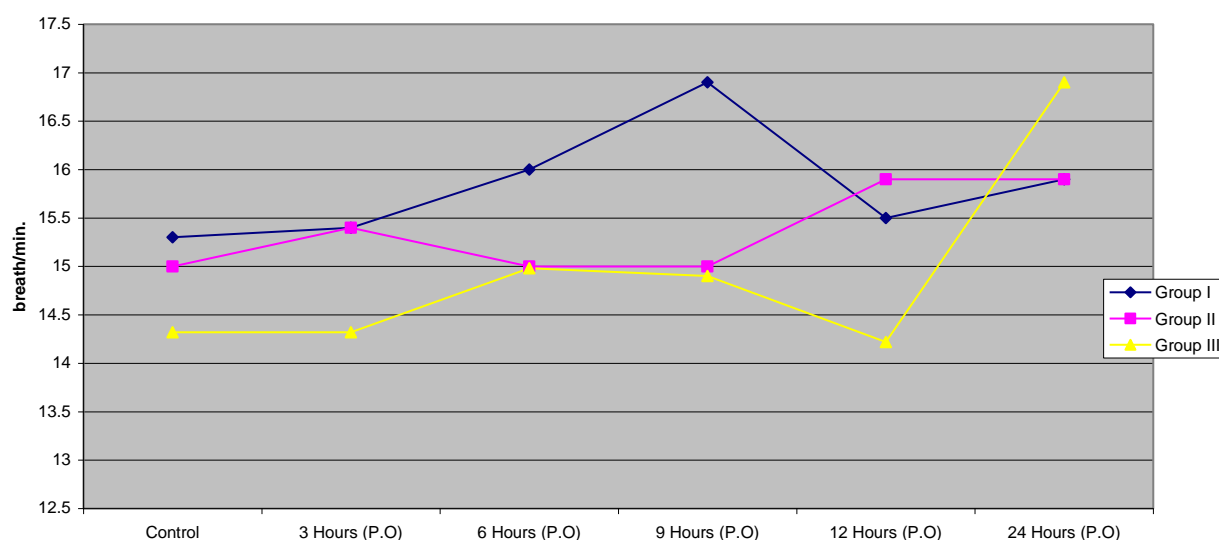


Figure (15):Mean respiratory rate (breath/min.) among the study groups over the postoperative period

Laboratory findings:

*Cortisol level :

In the first sample , the highest results were found in group I .
The difference between this group and the other 2 groups was statistically ($p < 0.05$)

In the second and third sample , there was no statistically significant differences among the three study groups (table 18 and fig. 16).

Table(18): Cortisol level /ug/L(mean \pm SD).

GROUP	Control SAMPLE	SAMPLE NO.1	SAMPLE NO.2	SAMPLE NO.3
GROUP I	22.1 \pm 2.2	25.4 \pm 4.2*	22.0 \pm 4.3	22.1 \pm 4.2
GROUP II	23.2 \pm 1.4	22.6 \pm 3.8*	21.5 \pm 3.7	22.8 \pm 3.3
GROUP III	22.5 \pm 2.1	20.2 \pm 2.9	21.3 \pm 3.2	22.9 \pm 2.5

(*)=Statistically significant compared to other groups

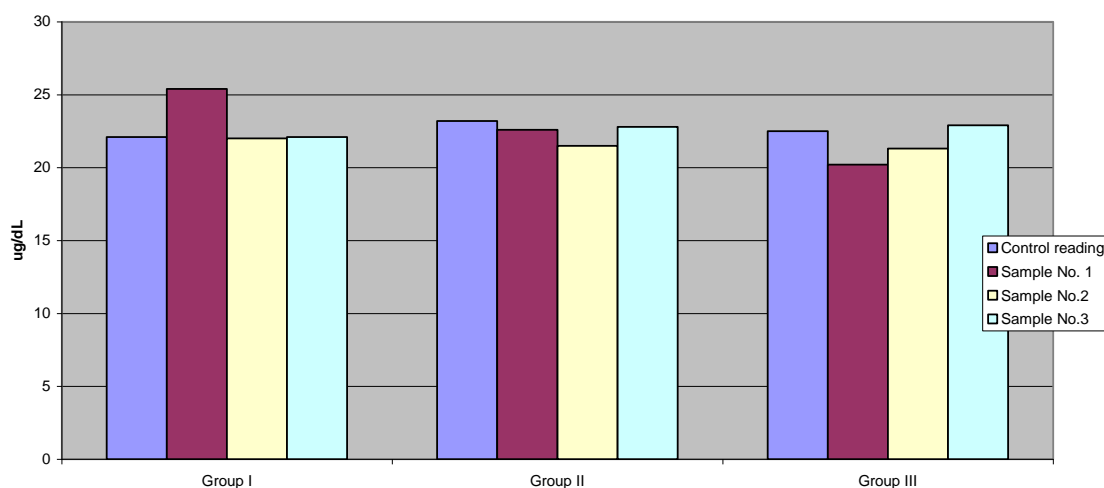


Figure (16): Mean cortisol level (ug/dL) among the study groups through the study period.

* Adrenaline level:

like cortisol , In the first sample , the highest adrenaline level was found in group II and the lowest level was in group III .There was a statistically significant difference between group I, II and group III(P value<0.05)

In the second and third sample , there was no statistically significant differences between the three study groups (table19and fig.17).

Table(19) : Adrenaline level (ug/L)(mean±SD).

GROUP	Control SAMPLE	SAMPLE NO.1	SAMPLE NO.2	SAMPLE NO.3
GROUP I	83.1±44.2	95.5±39.8*	88.1±43.5	81.1±44.2
GROUP II	85.3±40.2	102.6±42.9*	87.3±40.2	81.6±39.9
GROUP III	83.5±41.6	86.5±38.2	85.5±41.6	80.6±40.5

(*)=Statistically significant compared to other groups

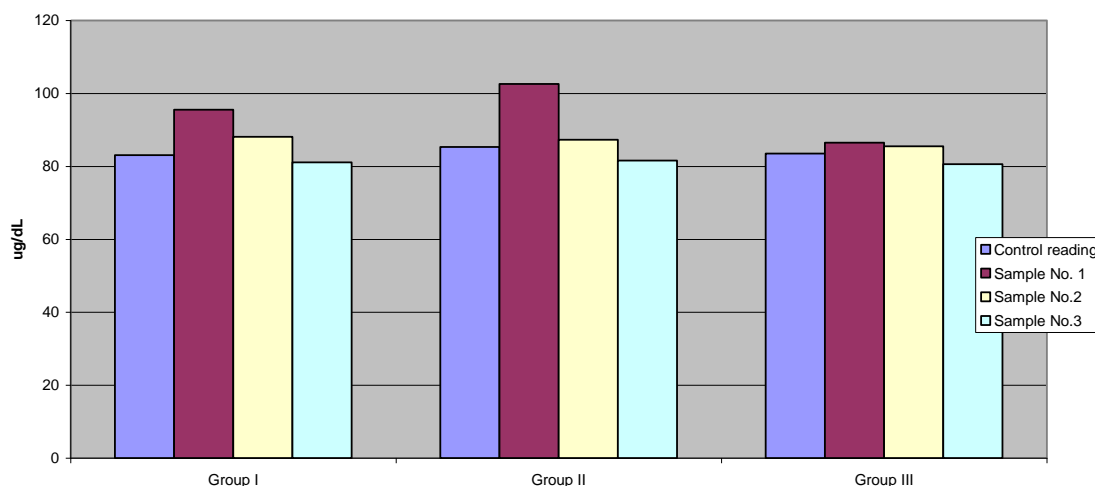


Figure (17):Mean adrenaline level (pg/dL)among the study groups through the study period.

The frequency of side effects was noted for each patient during the study period(table21):

Postoperative nausea and vomiting (PONV) :

4 patients (13.33%) developed PONV in group I ,8 patients (26.66%) in group II compared with 7 patients (23.33 %) in group III . There was statistically insignificant difference among the three groups of study for postoperative nausea and vomiting (PONV) .

Pruritus

Was experienced by 3 patients (10 %) in group I ,4 patients (13.33%) in group II compared with 6 patients in group III (20%) .There was statistically significant difference between groupI &II and III.

Constipation :

In group I four patients developed constipation(13.33%),three patients(10%) in group II compared with three patients(10%)only in groupIII Suffered from constipation .There was no statistically significant difference among the three study groups .

RESIRATORY DEPRESSION:

Three patients in group III(10%) developed sign of respiratory depression and were treated successfully with carefull titrating doses of i.v naloxone (starting from0.2 mg up to 2mg).

Table(20):Frequency of side effects of morphine.

SIDE EFFECTS	NAUSEA& VOMITING		PRURITUS		CONSTIATION		RESIRATORY DEPRESSION	
	NO.	%	NO.	%	NO.	%	NO.	%
GROUP I	4*	13.33	3*	10	4	13.33	0*	0
GROUP II	8	26.66	4*	13.33	3	10	0*	0
GROUP III	7	23.33	6	20	3	10	3	10

(*)=Statistically significant compared to other groups