Results

90 patients completed the study, no patient was excluded. The demographic data of patients are presented in table (4), non significant statistical difference between groups (P>0.05) as regards age, weight and duration of surgery.

Table (4) : demographic data (mean ± SD)

	G1 (n=30)	**G2 (n=30)**	**G3(n=30)**	***P***
Age (years)	**36.18±8.54**	**38.26±10.30**	**36.65±9.82**	**0.154**
Weight (kg)	**78.65±7.81**	**73.08±9.35**	**73.83±5.40**	**0.083**
Duration of surgery (min)	**75.56±15.81**	**78.32±14.23**	**78±16.9**	**0.102**

n=Number of patients

G1= preemptive intramuscular group

G2= preemptive intravenous group

G3=preemptive epidural group.

Hemodynamic parameters:

Intraoperative mean arterial blood pressure and heart rate were recorded every 30 minutes.

1- Mean arterial blood pressure:

Table (5) , figure (10) shows intraoperative mean arterial blood pressure (mmHg) (mean±SD). There was a significant statistical difference between group 1 and group 2 at 30, 60 minutes and highly significant at 90 minutes. At 30 minutes mean arterial blood pressure in group 1 was(99.12±6.55)and in group 2 was(94.65±7.54),at 60 minutes mean arterial blood pressure in group 1 was (98.44 ± 5.21 mmHg), and was (90.87±4.28 mmHg) in group 2 ,however at 90 minutes it was in group 1 (97.09±4.97 mmHg) and (87.83±5.69 mmHg) in group 2.

There was a highly significant statistical difference between group 2 and group 3 at 30,60 and 90 minutes, at 30 minutes mean arterial blood pressure was in group 2 (94.56±7.54 mmHg) and (86.46±5.23 mmHg) in group 3, at 60 minutes, it was (90.87±4.28 mmHg) in group 2 and (84.87±5.69 mmHg) in group 3, at 90 minutes it was (87.83±5.69 mmHg) in group 2 and (80.65±4.73 mmHg) in group 3.

There was a highly significant statistical difference between group 1 and group 3 at 30, 60 and 90 minutes, At 30 minutes, mean arterial blood pressure in group 1 was (99.12±6.55 mmHg) and in group 3 was (86.46±5.23 mmHg), at 60 minutes, it was (98.44±5.21 mmHg) in group 1 and (84.87±5.69) in group 3. At 90 minutes it was (97.09±4.97) in group 1 and (80.65±4.73) in group 3.

Table (5): Intraoperative mean blood pressure (mmHg) mean ±SD

Time	G1 (n=30)	G2 (n=30)	G3 (n=30)	P_1	P_2	P_3
0 Minutes	98.62±4.88	96.82±6.54	99.05±6.78	**NS 0.161**	**NS** 0.082	**NS** 0.871
30 minutes	99.12±6.55	94.65±7.54	86.46±5.23	**S** 0.022	H**S** 0.008	**HS** 0.007
60 minutes	98.44±5.21	90.87±4.28	84.87±5.69	**S** 0.024	**HS** 0.008	H**S** 0.007
90 minutes	97.09±4.97	87.83±5.69	80.65±4.73	**HS** 0.009	**HS** 0.008	**HS** 0.008

n=number of patients

G1 = intramuscular group

G2= intravenous group

G3= Epidural group

P_1 between G1 and G2

P_2 between G2 and G3

P_3 between G1 and G3

S= Significant ($p < 0.05$)

NS= not significant ($p > 0.05$)

HS=highly significant($p<0.01$)

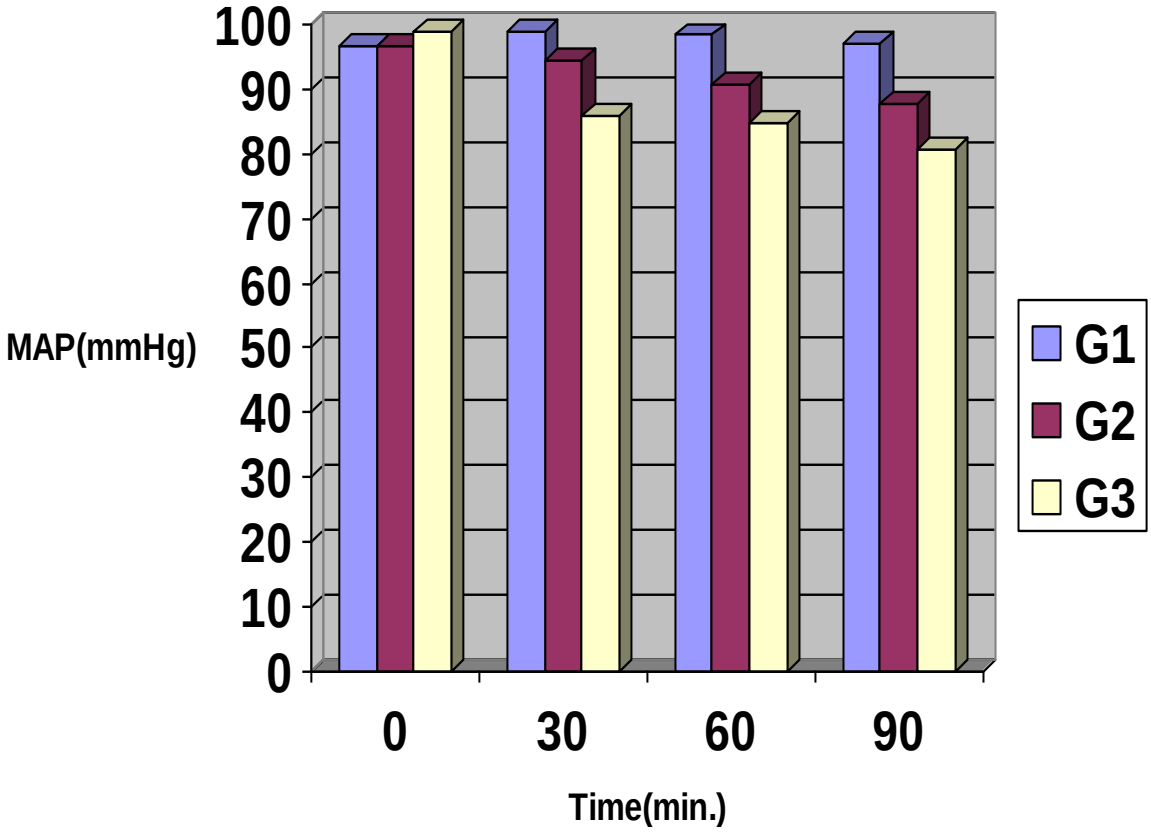


Figure (10): Intraoperative mean blood pressure (mmHg) mean

2- Heart rate:

Table (6) and figure (11) show intraoperative heart rate (beat/ minute) mean ±SD.

At 0 minute there was non significant statistical difference between (G1 , G2) and between (G2 ,G3),however there was a significant statistical difference between G1 and G3.

There was a statistical difference between group 1 and group 2 at 30, 60,90 minutes. At 30 minutes, heart rate in group 1 was (88.12±5.31 beat / minute) but in group 2 it was (77.43 ±8.36 beat / minute). At 60 minutes in group 1 heart rate was (87.76 ± 6.05 beat / minute) but in group 2 it was (73.34 ±5.44 beat/ minute). At 90 minutes the heart rate in group 1 was (83.41 ± 5.80 beat / minute) but in group 2 it was (70.36 ± 6.72 beat / minute).

Regarding group 2 and group 3, there was also a significant statistical difference between them at30,60 and 90 minutes,at 30 minutes heart rate in G2was (77.43±8.36) and G3 was(76.74±7.52) ,at 60 minutes heart rate in G2 was(73.34±5.44) and G3 was(73.82±3.41) ,at 90 minutes G2 was (70.36 ± 6.72 beat / minute) but G3 was (66.23 ± 5.12 beat / minute).

There is also statistical difference between G1 and G3 at 30, 60 and 90 minutes. At 30 minutes G1 was (88.12 ± 5.31 beat / minute) but G3 was (76.74 ± 7.52 beat / minute). At 60 minutes G1 was (87.76 ± 6.05) but G3 was (73.82 ± 3.41). At 90 minutes G1 was (83.41 ± 5.80) but G3 was (66.23±5.12 beats / minute)

Table (6): Intraoperative heart rate (pulse / minute) mean ±SD

Time	G1 (n=30)	G2 (n=30)	G3 (n=30)	P_1	P_2	P_3
0 Minutes	90.12±3.81	91.45±6.41	93.32±5.41	**NS 0.086**	**NS 0.108**	**S 0.031**
30 minutes	88.12±5.31	77.43±8.36	76.74±7.52	**HS 0.009**	**HS 0.006**	**HS 0.008**
60 minutes	87.76±6.05	73.34±5.44	73.82±3.41	**HS 0.001**	**HS 0.007**	**HS 0.005**
90 minutes	83.41±5.80	70.36±6.72	66.23±5.12	**HS 0.000**	**S 0.043**	**HS 0.002**

n= number of patients
G1= intramuscular group
G2= intravenous group
G3= Epidural group
0 minutes = base line reading.
P_1 between G1 and G2
P_2 between G2 and G3
P_3 between G1 and G3
S= Significant (p < 0.05)
NS= not significant (p >0.05)
HS=highly significant(p<0.01)

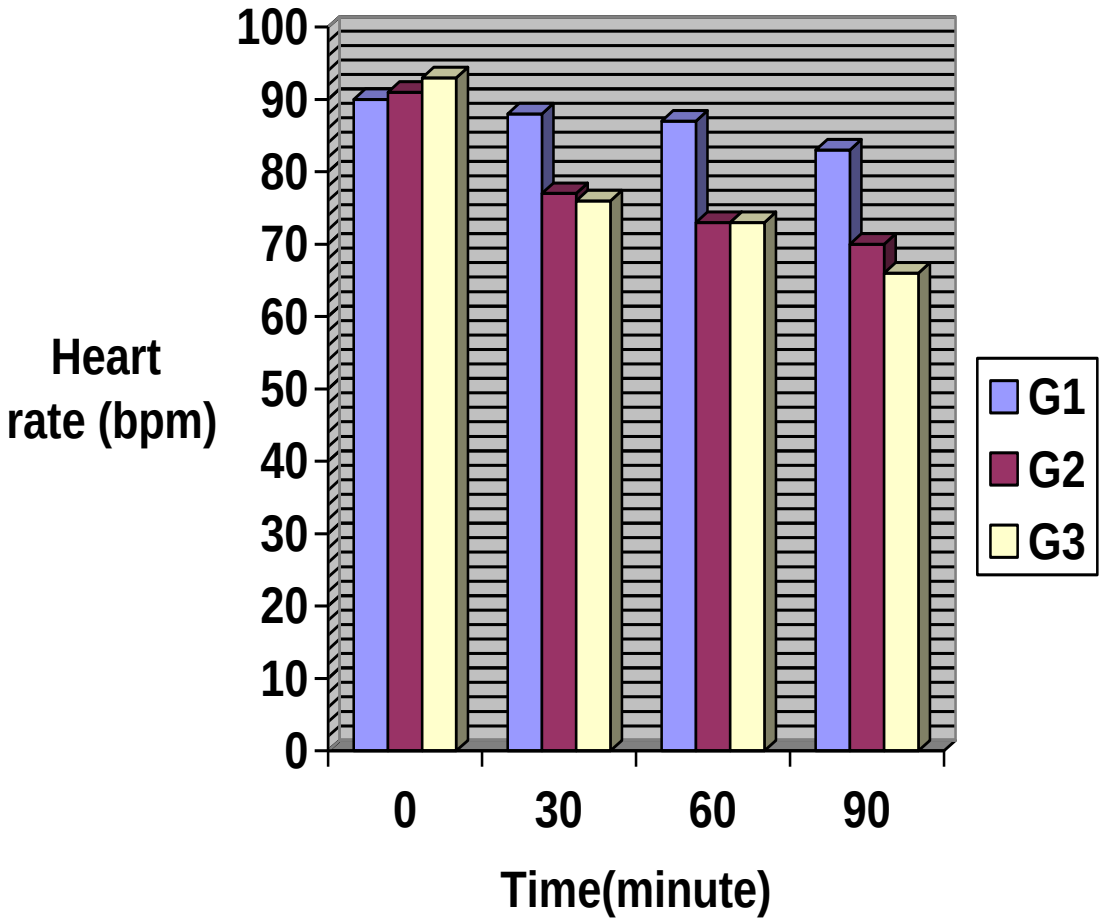


Figure (11) Intraoperative heart rate (beat/minute) mean.

3- Peripheral arterial O_2 saturation:

Table (7) and figure (12) show that there was no significant difference between the three groups regarding the saturation of oxygen,except at 90 minutes between G1 and G2 ,and between G2 andG3 ,G1 was (97.39±1.06) and G2 was(96.08±1.11)and G3 was(96.99±1.18) .

Table (7): Intraoperative O2 saturation (%) mean ± SD

Time	G1 (n=30)	G2 (n=30)	G3 (n=30)	P_1	P_2	P_3
0 Minutes	97.56 ±1.05	96.98±1.13	97.42±1.03	**S** 0.035	**NS** 0.082	**NS** 0.191
30 minutes	97.43±1.06	97.01±1.16	97.21±1.06	**NS** 0.128	**NS** 0.201	**NS** 0.099
60 minutes	97.21±1.08	97.02±1.04	96.92±1.18	**NS** 0.280	**NS** 0.071	**NS** 0.386
90 minutes	97.39±1.06	96.08±1.11	96.99±1.18	**S** 0.041	**S** 0.044	**NS** 0.107

n= number of patients.

G1= intramuscular group.

G2= intravenous group.

G3= Epidural group.

0 minutes = base line reading.

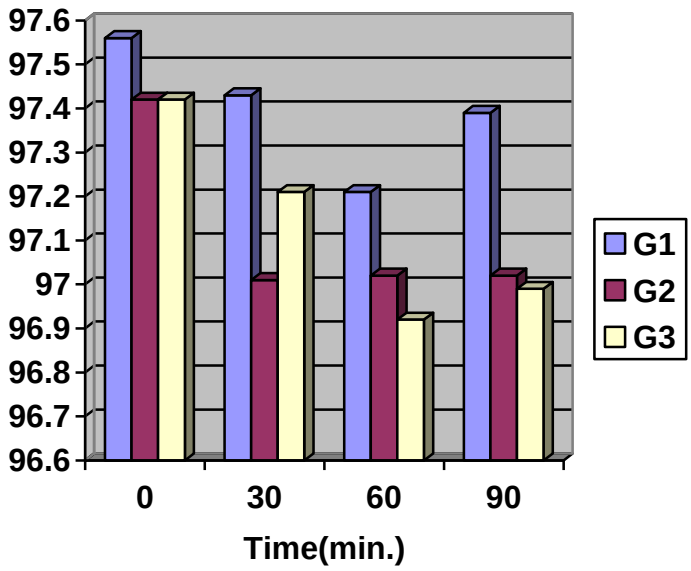
P_1 between G1 and G2

P_2 between G2 and G3

P_3 between G1 and G3

S= Significant ($p < 0.05$)

NS= not significant ($p > 0.05$)



Figure(12) Peripheral arterial O_2 saturation (mean).

Postoperative:

1- Time to **first** rescue analgesics **(TFA):**

Table (8) and figure (13) show that there was a statistical difference between group 1 (20.50±6.08) and group 2 (27.30± 10.83). There was also a significant statistical difference between group 1 (20.50±6.08) and group 3 (35.5±38.18). There was also statistical difference between group 2 (27.30 ±10.83) and group 3 (35.53 ±8.18).

Table (8): Time to first rescue analgesics mean± SD.

Time	G1 (n=30)	G2 (n=30)	G3 (n=30)	P_1	P_2	P_3
	20.50 ±6.08	27.30±10.83	35.53±8.18	**S** 0.048	**S** 0.039	**S** 0.044

n= number of patients.

G1= Intramuscular group.

G2= Intravenous group.

G3= Epidural group.

P_1 between G1 and G2

P_2 between G2 and G3

P_3 between G1 and G3

S= Significant (p < 0.05)

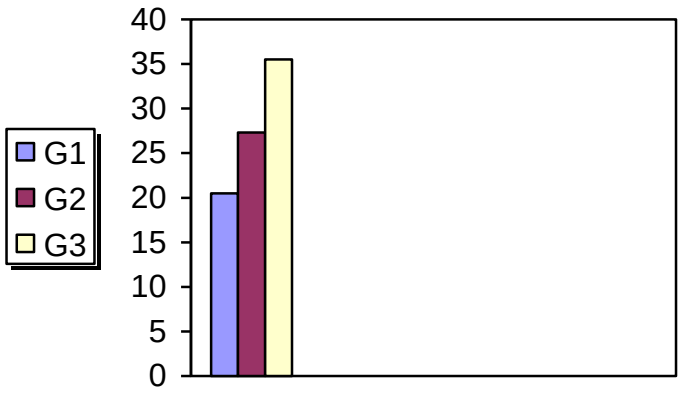


Figure (13): The time to first rescue analgesics (TFA) (minutes) mean

2- Mean arterial blood pressure:

Table (9) and figure (14) show postoperative mean arterial blood pressure.There was a statistical difference between group 1 and group 2 at 0.5, 1, 1.5, 2,6,10, 18, 22 hours. At 0.5 hr, mean arterial blood pressure

(MAP) in group 1 was (110.53±3.42 mmHg) and (104.81± 4.60 mmHg) in group 2. At 1 hr MAP was (106.54±3.82 mmHg) in group 1 and (102.64±3.51mmHg) in group 2 . At 1.5hr MAP was (105.98±3.32 mmHg) in group 1 and (100.52±2.91 mmHg) in group 2. At 2 hr MAP was (105.09±4.81 mmHg) in group 1 and (98.08±4.87 mmHg) in group 2. At 6 hr MAP in group 1 was (104.23±2.81 mmHg) and (97.81±3.56mmHg) in group 2. At 10 hr MAP was (101.43±6.71mmHg) in group 1 and (96.62±4.54mm Hg) in group 2. At 18 hrs MAP was (98.91±2.21mmHg) in group 1 and (94.22±3.74mmHg) in group 2. At 22 hrs MAP was (94.83±7.14mmHg) in group 1 and (90.18±5.12mmHg) in group 2.

There was also statistical difference between group 1 and group 3 at 0.5, 1,1.5,2,6,10,14,18,22 hrs. At 0.5 hr MAP in group 1 was (110.53±3.42mmHg) and (100.50±4.45mmHg) in group 3. At 1 hr MAP was (106.54±3.82mmHg) in group 1 and (96.51±3.21mmHg) in group 3.At 1.5 hr MAP was (105.98±3.32 mmHg) in group 1 and (94.71±2.86 mmHg) in group 3. At 2 hrs MAP was (105.09±4.81mmHg) in group 1 and (94.88±4.55mmHg) in group 3. At 6 hrs MAP was (104.23±2.81mmHg) in group 1 and (93.32±5.53mmHg) in group 3.At 10 hrs MAP was (101.43±6.71mmHg)in group 1 and (91.41±2.36mmHg) in group 3. At 14 hrs MAP was (99.08±5.52mmHg) in group 1 and (90.19±3.92 mmHg) in group 3. At 18 hrs MAP was (98.91±2.21 mmHg) in group 1 and (88.71±4.23 mmHg) in group 3. At 22 hrs MAP was (94.83±7.14mmHg) in group 1 and (86.11±2.43mmHg) in group3.

The was also statistical significant difference between group 2 and group 3 at 0.5,1,1.5,2,6,10,14,18,22 hrs. At 0.5hrs MAP was (104.81±4.60 mmHg) in group 2 and (100.50±4.45mmHg) in group 3. At 1 hr MAP was (102.64±3.51 mmHg) in group 2 and (96.51±3.21 mmHg) in group 3.At 1.5 hr MAP was (100.52±2.91 mmHg) in group 2 and

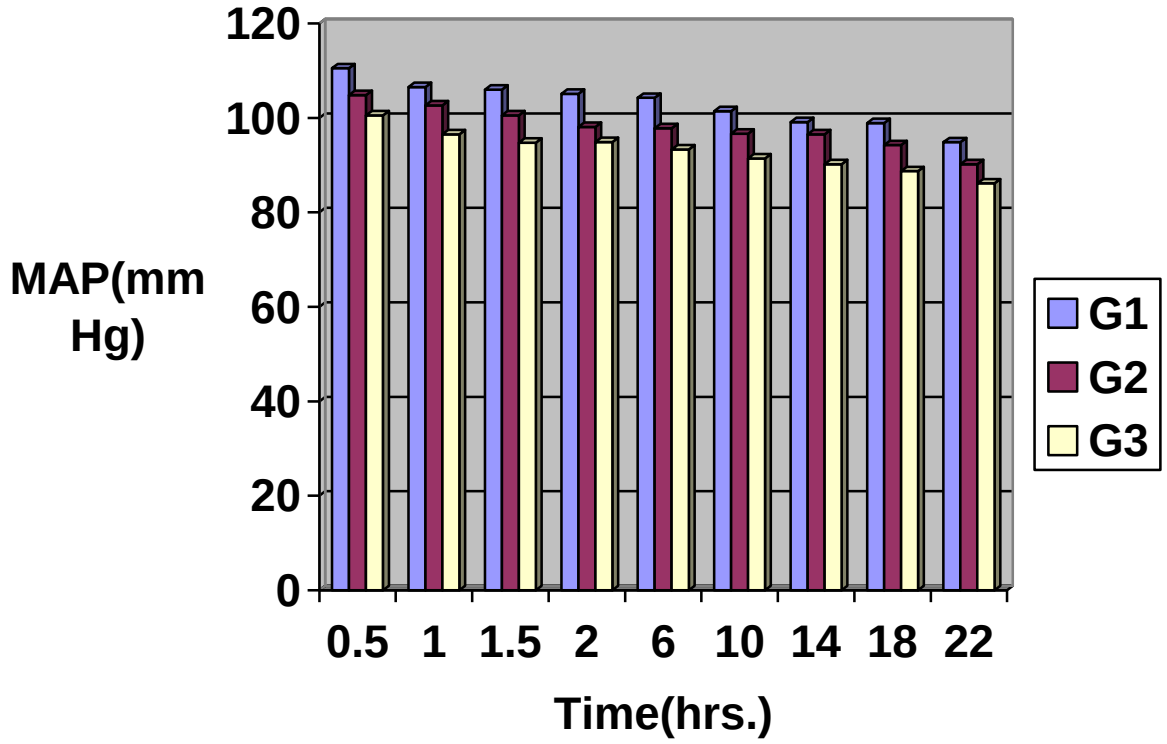
(94.71±2.86mmHg) in group 3. At 2 hrs MAP was (98.08±4.87mmHg) in group 2 and (94.88±4.55mmHg) in group 3. At 6 hrs MAP was (97.81±3.56mmHg)in group 2 and (93.32±5.53mmHg) in group 3. At 10 hrs MAP was (96.62±4.54 mmHg) in group 2 and (91.41±2.36 mmHg) in group 3. At 14 hrs MAP was (96.51±5.91 mmHg) in group 2 and (90.19±3.92 mmHg) in group 3. At 18 hrs MAP was (94.22±3.74 mmHg) in group 2 and (88.71±4.23 mmHg) in group 3. At 22 hrs MAP was (90.18± 5.12 mmHg) in group 2 and (86.11±2.43 mmHg) in group 3.

Table (9): Postoperative mean arterial blood pressure (mmHg) mean ±SD:

Time	**G1 (n=30)**	**G2 (n=30)**	**G3 (n=30)**	**P_1**	**P_2**	**P_3**
0.5 hr	110.53 ±3.42	104.81±4.60	100.50±4.45	**S** 0.038	**S** 0.042	**S** 0.027
1 hr	106.54±3.82	102.64±3.51	96.51±3.21	**S** 0.036	**S** 0.044	**S** 0.018
1.5 hr	105.98±3.32	100.52±2.91	94.71±2.86	**S** 0.035	**S** 0.046	**S** 0.048
2 hr	105.09±4.81	98.08±4.87	94.88±4.55	**S** 0.039	**S** 0.024	**S** 0.013
6 hr	104.23±2.81	97.81±3.56	93.32±5.53	**S** 0.028	**S** 0.039	**S** 0.042
10 hr	101.43±6.71	96.62±4.54	91.41±2.36	**S** 0.030	**S** 0.019	**S** 0.028
14 hr	99.08±5.52	96.51±5.91	90.19±3.92	**NS** 0.129	**S** 0.018	**S** 0.012
18 hr	98.91±2.21	94.22±3.74	88.71±4.23	**S** 0.026	**S** 0.032	**S** 0.030
22 hr	94.83±7.14	90.18±5.12	86.11±2.43	**S** 0.037	**S** 0.045	**S** 0.028

n=number of patients.
G1=intramuscular group.
G2= intravenous group.
G3= Epidural group.
P_1 between G1 and G2
P_2 between G2 and G3
P_3 between G1 and G3
S= Significant ($p < 0.05$)

NS= not significant (p >0.05)



Figure(14)post operative mean arterial blood pressure (mean).

3- Heart Rate:

Table (10) and figure (15) show postoperative heart rate (beat/ minute) mean ± SD.

There was a statistical difference between group 1 and group 2 at: 0.5,2, 10 hrs.At 0.5 heart rate (HR)in G1 was (92.31±3.62) and in G2 was (90.41±2.23), At 2 hrs HR in group 1 was (90.11±4.21 bpm) and in group 2 was (86.56±4.61 bpm). At 10 hrs HR in group 1 was (87.34±3.48bpm) and in group 2 was (83.78±6.31 bpm).

There was statistical difference between group 2 and group 3 at 0.5,1.5,2 and 6 hrs .At 0.5 HR in G2 was (90.41±2.23) and in G3 was (87.23±6.31),at 1.5 hr HR in G2 was (88.76±5.45) and in G3 was (84.82±5.11) , at 2hrs HR in G2 was (86.56±4.61) and G3 was

(82.01±2.02) , At 6hrs HR in G2 was (85.64±6.42) and in G3 was (81.81±2.31).

There was a statistical difference between group 1 and group 3 at: 0.5,1,1.5, 2, 6, 10,14 hrs. At 0.5 hr HR in group 1 was (92.31±3.62bpm) and (87.23±6.31bpm) in group 3. At 1 hr HR in group 1 was (91.42±6.51bpm) and in group 3 was (86.91±7.82 bpm). At 1.5 hr HR in group 1 was (90.34±5.83bpm) and in group 3 was (84.82±5.11bpm). At 2 hrs HR in group 1 was (90.11±4.21bpm) and in group 3 was (82.01±2.02bpm). At 6 hrs HR in group 1 was (88.23±5.30bpm) and in group 3 was (81.81±2.3bpm). At 10 hrs HR in group 1 was (87.34±3.48 bpm) and in group 3 was (81.34±7.40bpm).At 14 hrs HR in G1 was (85.65±6.91) and in G3 was (81.61±4.32).

Table (10): postoperative heart rate mean± SD.

Time	G1 (n=30)	G2 (n=30)	G3 (n=30)	P_1	P_2	P_3
0.5 hr	92.31±3.62	90.41±2.23	87.23±6.31	**S** 0.018	**S** 0.036	**S** 0.021
1 hr	91.42±6.51	88.89±3.80	86.91±7.82	**NS** 0.087	**NS** 0.235	**S** 0.040
1.5 hr	90.34±5.83	88.76±5.45	84.82±5.11	**NS** 0.116	**S** 0.026	**S** 0.035
2 hr	90.11±4.21	86.56±4.61	82.01±2.02	**S** 0.038	**S** 0.041	**S** 0.014
6 hr	88.23±5.30	85.64±6.42	81.81±2.31	**NS** 0.208	**S** 0.025	**S** 0.035
10 hr	87.34±3.48	83.78±6.31	81.34±7.40	**S** 0.016	**NS** 0.099	**S** 0.027
14 hr	85.65±6.91	82.94±5.69	81.61±4.32	**NS** 0.169	**NS** 0.081	**S** 0.042
18 hr	80.57±3.76	79.84±4.71	80.58±5.68	**NS** 0.320	**NS** 0.163	**NS** 0.291
22 hr	78.71±2.51	78.31±3.28	76.84±3.71	**NS** 0.079	**NS** 0.108	**NS** 0.166

n=number of patients.

G1=Intramuscular group.

G2= Intravenous group.

G3= Epidural group.

P_1 between G1 and G2

P_2 between G2 and G3

P_3 between G1 and G3

S= Significant ($p < 0.05$)

NS= not significant ($p > 0.05$)

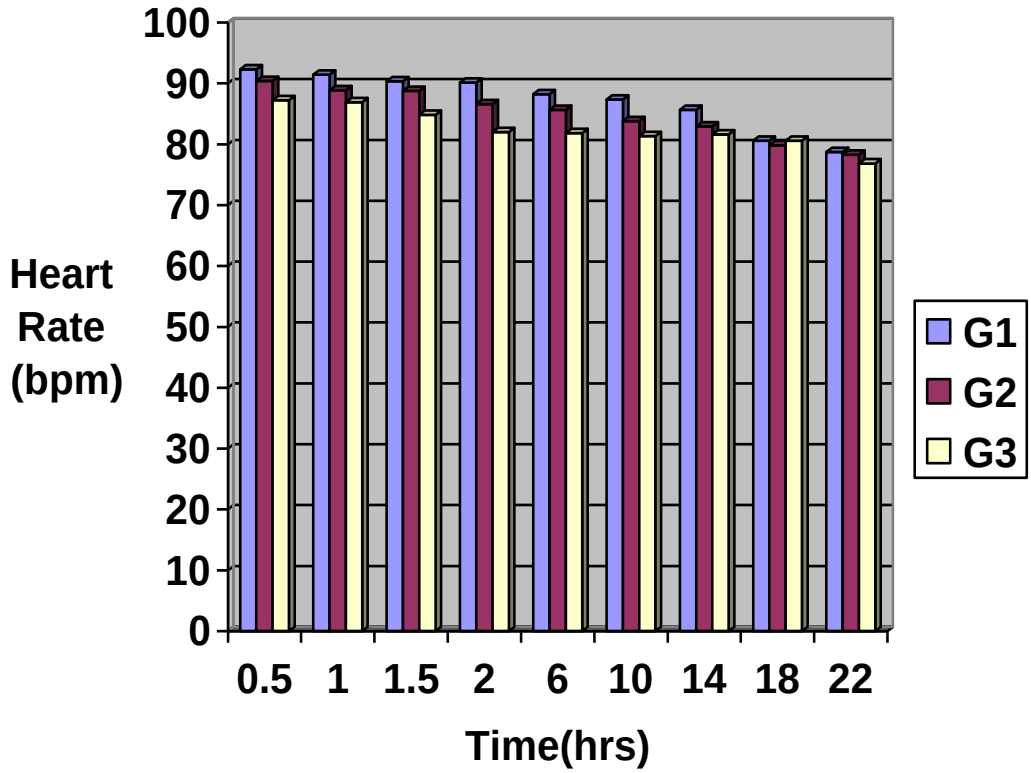


Figure (15)Postoperative Heart Rate (Mean)

4- Visual Analogue Scale:

Table (11) and figure (16) show the visual analogue scale (VAS) mean ± SD. There was a significant statistical difference between group 1 and group 2 at 0.5,6,10,14,18,22 hrs.

At 0.5hr VAS in group 1 was (7.52±1.82)and in group 2 was (6.43±1.61). At 6 hrs VAS in group 1 was (5.72±1.39) and in group 2 was (4.67±0.21). At 10 hrs VAS in group 1 was (4.72±2.87) and in group 2 was (3.53±0.81). At 14 hrs VAS in group 1 was (4.51±1.23) and in group 2 was (3.53±0.81). At 18 hrs VAS in group 1 was (4.8±0.45) and in group 2 was (3.39±1.41). At 22 hrs VAS in group 1 was (3.73±0.12) and in group 2 was (2.90±0.22).

There was also a significant statistical difference between group 1 and group 3 from 0.5 to 22 hrs. At 0.5 VAS in group 1 was (7.52±1.82) and in group 3 was (4.82±2.31). At 1 hr VAS in group 1 was (6.93±1.64) and in group 3 was (4.53±1.42). At 1.5 hr VAS in group 1 was (5.65±2.61) and in group 3 was (4.01±1.30). At 2 hrs VAS in group 1 was (5.18±0.88) and in group 3 was (3.81±1.08). At 6 hrs VAS in group 1 was (5.72±1.39) and in group 3 was (3.62±2.71). At 14 hrs VAS in group 1 was (4.72±2.87) and in group 3 was (2.81±1.03).At 14 hrs VAS in group 1 was (4.51±1.23) and in group 3 was (2.08±1.29). At 18 hrs VAS in group 1 was (4.81±0.45) and in group 3 was (2.12±0.81). At 22 hrs VAS in group 1 was (3.73±0.12) and in group 3 was (1.71±1.75).

There was a statistical significant difference between group 2 and group 3 from 0.5 to 22 hrs. At 0.5 VAS in group 2 was (6.43±1.61) and in group 3 was (4.82±2.31). At 1 hr VAS in group 2 was (5.82±2.54) and in group 3 was (4.53±1.42). At 1.5hr VAS in group 2 was (5.51±1.32) and in group 3 was (4.01±1.30). At 2 hrs VAS in group 2 was (4.98± 1.54) and in group 3 was (3.81±1.08). At 6 hrs VAS in group 2 was

(4.67±0.21) and in group 3 was (3.62±2.71). At 10 hrs VAS in group 2 was (3.49±1.08) and in group 3 was (2.81± 1.03). At 14 hrs VAS in group 2 was (3.53±0.81) and in group 3 was (2.80±1.29).At 18 hrs VAS in group 2 was (3.39±1.41) and in group 3 was (2.12±0.81). At 22 hrs VAS in group 2 was (2.90±0.22) and in group 3 was (1.71±1.75).

Table (11): Visual Analogue Scale (mean± SD)

Time	G1 (n=30)	G2 (n=30)	G3 (n=30)	P_1	P_2	P_3
0.5 hr	7.52±1.82	6.43±1.61	4.82±2.31	**S** 0.012	**S** 0.040	**S** 0.011
1 hr	6.93±1.64	5.82±2.54	4.53±1.42	**NS** 0.055	**S** 0.031	**S** 0.020
1.5 hr	5.65±2.61	5.51±1.32	4.01±1.30	**NS** 0.101	**S** 0.036	**S** 0.044
2 hr	5.18±0.88	4.98±1.54	3.8±1.08	**NS** 0.090	**S** 0.019	**S** 0.012
6 hr	5.72±1.39	4.67±0.21	3.62±2.71	**S** 0.045	**S** 0.021	**S** 0.038
10 hr	4.72±2.87	3.49±1.08	2.81±1.03	**S** 0.028	**S** 0.023	**S** 0.019
14 hr	4.5±1.23	3.53±0.81	2.80±1.29	**S** 0.045	**S** 0.026	**S** 0.030
18 hr	4.81±0.45	3.39±1.41	2.12±0.81	**S** 0.018	**S** 0.021	**S** 0.018
22 hr	3.73±0.12	2.90±0.22	1.71±1.75	**S** 0.044	**S** 0.036	**S** 0.019

n= number of patients.

G1= intramuscular group.

G2= intravenous group .

G3= Epidural group.

P_1 between G1 and G2

P_2 between G2 and G3

P_3 between G1 and G3

S= Significant ($p < 0.05$)

NS= not significant ($p > 0.05$)

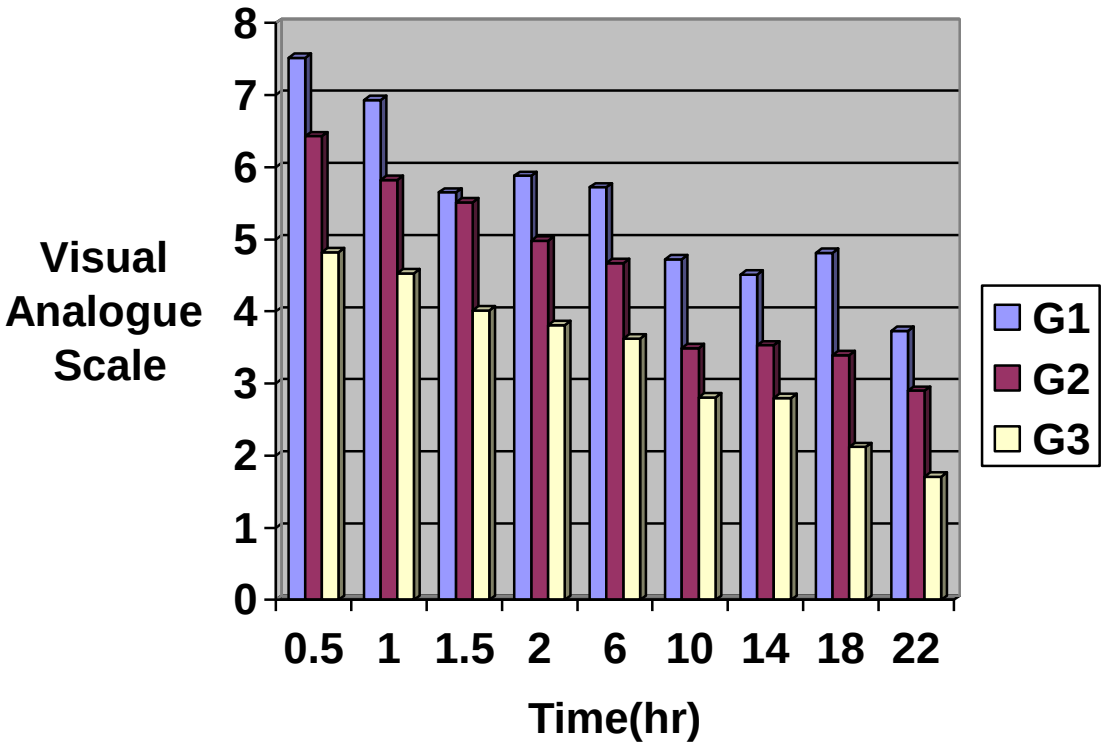


Figure (16): Visual analogue scale mean .

Stress hormones:

Cortisol, thyroxin and glucose were measured at the preoperative time then after 30 minutes of the surgical stimulus, lastely at the immediate postoperative time.

1- **Cortisol:**

Table (12) and figure (17) show the cortisol level (ug/dl) mean ± SD.

At the preoperative time there is a non significant statistical difference between the three groups.

There was a non significant statistical difference between G1 (29.98±1.64)and G2(29.03±2.40)after 30 minutes of the surgical stimulus .At the postoperative period there was a significant statistical difference between G1(34.87±2.81) and G2 (31.42±1.88).

There was also a significant statistical difference between G2 and G3 at both 30 minutes after the surgical stimulus, G2 was (29.03±2.40) and G3 was (26.88±1.51) and at the postoperative period ,G2 was (31.42±1.88) and G3 was (28.65±3.02) .

There was a statistical difference between G1 and G3, At both the 30 minutes after the surgical stimulus G1 was (29.98±1.64) and G3 was (26.88±1.51) ,and at the postoperative period G1 was (34.87±2.81) and G3 was (28.65±3.02) .

There was a significant statistical difference within each group in relation to time (P4)

Table (12): Cortisol level (ug/dl) mean±SD.

Time	G1 (n=30)	G2 (n=30)	G3 (n=30)	P_1	P_2	P_3
Preoperative	21.92±1.89	21.51±2.98	21.77±3.01	**NS** 0.063	**NS** 0.109	**NS** 0.228
30 minutes after surgical stimulus	29.98±1.64	29.03±2.40	26.88±1.51	**NS** 0.059	**S** 0.020	**S** 0.041
Postoperative	34.87±2.81	31.42±1.88	28.65±3.02	**S** 0.048	**S** 0.021	**S** 0.013
P4	**S** **0.019**	**S** 0.032	**S** 0.046			

n= number of patients.

G1= Intramuscular group.

G2= Intravenous group.

G3= Epidural group.

P_1 between G1 and G2
P_2 between G2 and G3
P_3 between G1 and G3
P4 between pre and postoperative within the same group
S= Significant (p < 0.05)
NS= not significant (p >0.05)

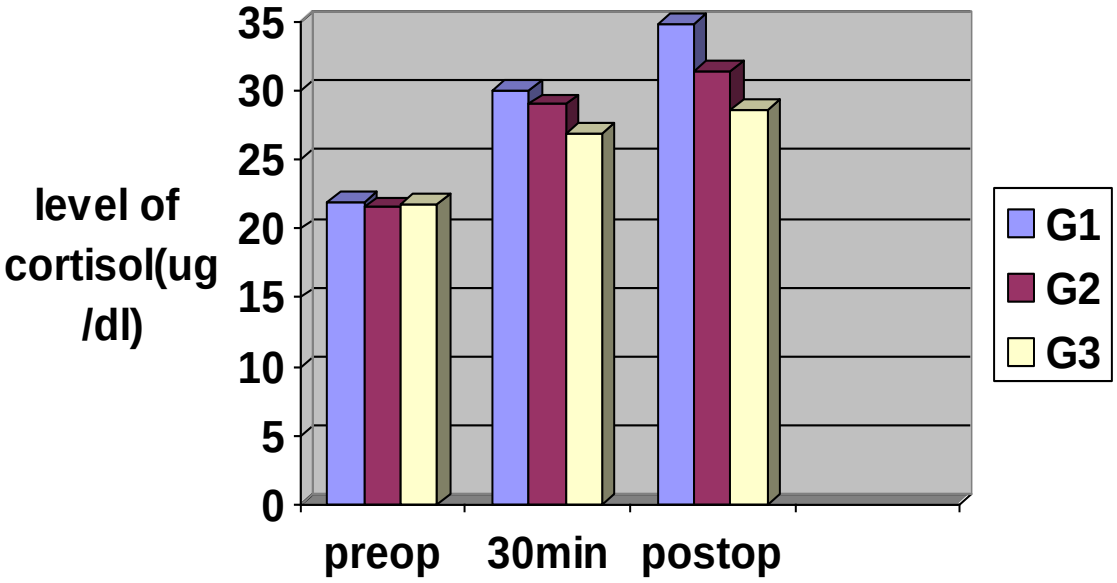


Figure (17) Plasma Cortisol Level (mean)

2- Thyroxin level:

Table (13) and figure (18) show the thyroxin level (ug%) mean± SD.

In the preoperative period there was a non significant statistical difference between G1,G2 andG3 in the level of the thyroxin (8.31±0.84ug%), (8.44±0.52ug%) and (8.02±1.00ug%) respectively.

There was a statistical difference between G1 and G2 after 30 minutes of the surgical stimulus,G1 was (11.03±1.31) and G2 was (9.12±1.36) and in the postoperative period G1 was (12.01±0.41) and G2was (11.42±0.82).

Between G2 and G3 there was a non significant statistical difference at the 30 minutes of the surgical stimulus G2 (9.12±1.36) andG3 was(8.88±1.21) .and a statistical significant difference at the postoperative period, G2 was (11.42±0.82) and G3 was (10.44±1.46).

Between G1 and G3 there was a significant statistical difference at 30 minutes of the surgical stimulus G1 was (11.03±1.31) and G3 was

(8.88±1.21) ,and at the postoperative period G1 was(12.01±0.41) and G3 was (10.44±1.46).

There was a significant statistical difference within each group in relation to time (P4)

Table (13): Thyroxin level (ug%) mean ± SD.

Time	G1 (n=30)	G2 (n=30)	G3 (n=30)	P_1	P_2	P_3
Preoperative	8.3±0.84	8.44±0.52	8.02±1.00	**NS** 0.051	**NS** 0.098	**NS** 0.136
30minutes after surgical stimulus	11.03±1.31	9.12±1.36	8.88±1.21	**S** 0.035	**NS** 0.468	**S** 0.020
Postoperative	12.01±0.41	11.42±0.82	10.44±1.46	**S** 0.018	**S** 0.029	**S** 0.041
P4	**S 0.040**	**S 0.019**	**S 0.023**			

n =number of patients.

G1= intramuscular group

G2= intravenous group.

G3= Epidural group.

P_1 between G1 and G2

P_2 between G2 and G3

P_3 between G1 and G3

P4 between pre and postoperative within the same group

S= Significant (p < 0.05)

NS= not significant (p >0.05)

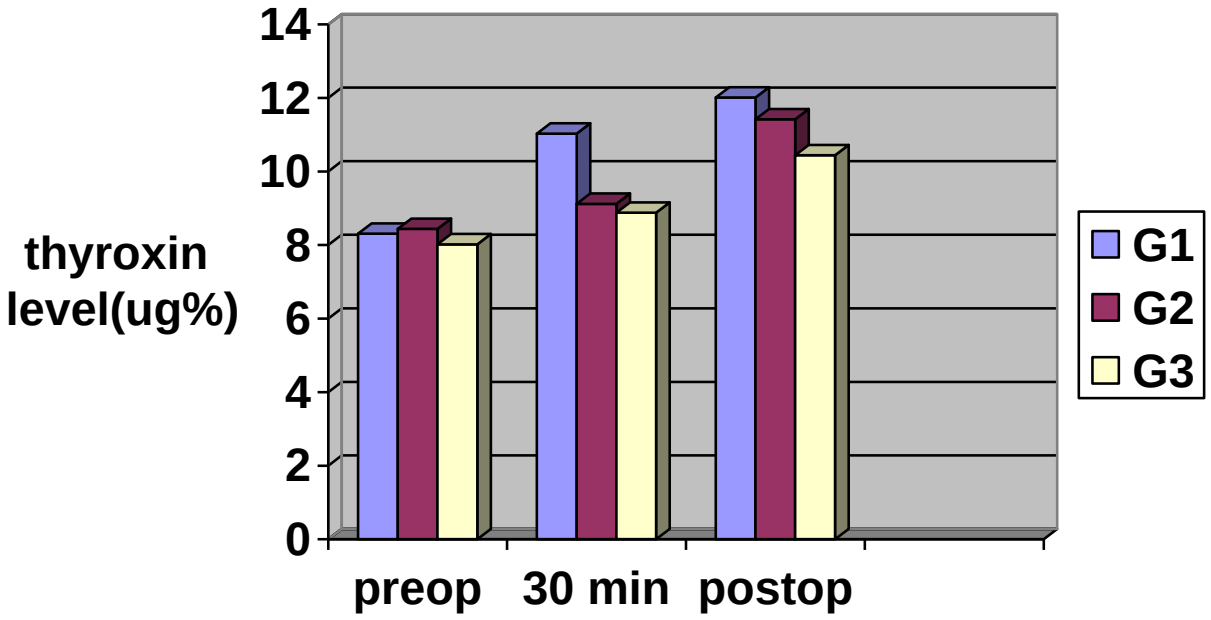


Figure (18) Thyroxin level (ug%)mean.

3- Glucose level:

Table (14) and figure (19) show that there was a non signficant statistical difference between G1,G2,G3 in the preoperative period .

Between G1 and G2 there was a significant statistical difference at both the 30 minutes of the surgical stimulus ,G1 was (120.58±9.81 mg/dl) and G2 was (109.49±14.66 mg/dl) and at the postoperarive period G1 was (143.66±20.31 mg/dl) and G2 was (122.31 ±15.97 mg/dl) .

Between G2 and G3 there was a significant statistical difference at both the 30 minutes of the surgical stimulus G2 was (109.49 ±14.66 mg/dl) and G3 was (96.00±15.54 mg/dl) ,and the postoperarive period G2 was (122.31 ±15.97 mg/dl) and G3 was (99.81±10.30 mg/dl) .

There was also significant statistical difference between G1 and G3 at both the 30 minutes of the surgical stimulus G1 was (120.58±9.81 mg/dl)

and G3 was(96.00±15.54 mg/dl),and the postoperarive period G1 was (143.66±20.31 mg/dl) and G3 was (99.81±10.30 mg/dl) .

There was also a significant statistical difference within the same group in relation to time in G1 and G2 ,and a non significant in G3 (P4).

Table (14): Serum glucose level (mg/dl) mean ± SD.

Time	**G1 (n=30)**	**G2 (n=30)**	**G3 (n=30)**	**P_1**	**P_2**	**P_3**
Preoperative	**95.08 ±14.91**	**94.83 ±15.80**	**93.92 ±10.03**	**NS 0.365**	**NS 0.264**	**NS 0.091**
30 minutes after surgical stimulus	**120.58 ±9.81**	**109.49 ±14.66**	**96.00 ±15.54**	**S** 0.038	**S** 0.028	**S** 0.041
Postoperative	**143.66 ±20.31**	**122.31 ±15.97**	**99.81±10. 30**	**S 0.046**	**S 0.019**	**S 0.032**
P4	**S 0.022**	**S 0.049**	**NS 0.110**			

n =number of patients.

G1= intramuscular group

G2= intravenous group.

G3= Epidural group.

P_1 between G1 and G2
P_2 between G2 and G3
P_3 between G1 and G3
P4 between pre and postoperative within the same group
S= Significant (p < 0.05)
NS= not significant (p >0.05)

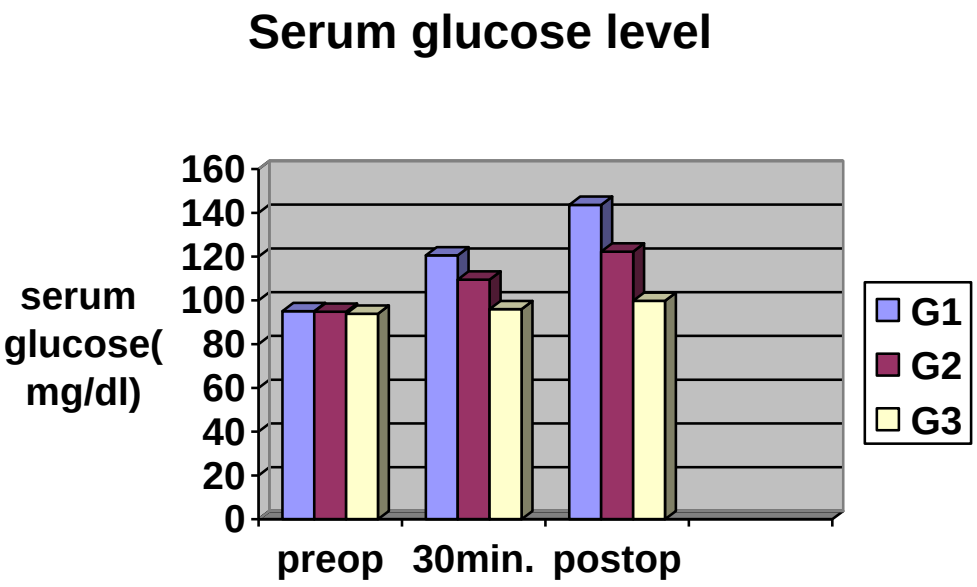


Figure (19): serum glucose level (mean).