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PROSPECTIVE RANDOMISED STUDY ON POSTOPERATIVE ANALGESIA FOR CAESAREAN SECTION WITH INTRATHECAL BUPRENORPHINE

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ABSTRACT

AIM: To compare the effectiveness of intrathecal 0.5%Heavy bupivacaine and Buprenorphine 60µ g w ith 0.5%Heavy bupivacaine for postoperative analgesia in elective caesarean section.

OBJECTIVE: To evaluate the efficacy , duration of post operative pain relief and to know the quality of analgesia provided by intrathecal opioids added to local anaesthetic agents.

METHODS: The study w as undertaken in 60 patients of ASA I and II posted for elective cesarean section for post operative pain relief.
GroupA – 30 patients – received 1.7ml of hyperbaric 0.5% bupivacaine w ith buprenorphine 0.2ml(60µ g).
GroupB – 30 patients – received 1.7ml of hyperbaric 0.5%bupivacaine w ith 0.2ml 0f 0.9% normal saline.

PLACE OF STUDY: CHENNAI MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTER.

RESULTS: -Onset of sensory analgesia is significantly increased(1-31/2min) in patients receiving buprenorphine than control group.

- Onset of motor blockade also significantly increased in study group 1-5min.
- Postoperative analgesia w as upto 13-14hours in groupA(study)w ith SD.96.33min than control group B 21/2 – 41/2 hours.
- There w as no statistically significant changes in pulse rate, respiratory rate, blood pressure , oxygen saturation and neonatal apgar score.
- There w as no respiratory depression in study group and few patients had a sedation score >3 w hich is statistically significant. There w as no statistically significant complications in both groups.

CONCLUSION: Anaesthesia w as superior w hen buprenorphine is mixed w ith bupivacaine (0.5%) as compared to bupivacaine alone. So this combination of drugs can be used for postoperative analgesia in elective cesarian section.

KEYWORDS : Semigroup, Lattice, Irreducible, Spatial lattice, vector space

- John Dryden

INTRODUCTION

The International Association for the Study of Pain defines pain as an "unpleasant sensory and emotional experience associated w ith actual or potential tissue damage or described in terms of such damage".

Surgical trauma and pain is a real problem to the patient during postoperative period. Yet after all the efforts taken to make the intra-operative period pain free and stress free, the patients are left to fend for herself in the post operative period.

Post operative pain unfortunately under treated that is usually w ritten in single line as injection fortw in 1cc i.m bid. This is due to traditional fear of respiratory depression and addiction and also lack of know ledge of pharmacodynamics and kinetics of opioid analgesics.

As the anaesthesiologist alleviate pain of the patient he scores as the ideal person to manage postoperative pain.

METHODS OF PAIN MEASUREMENT

Pain is a personal, subjective experience that comprises sensory-discriminative, motivational- affective and cognitive – evaluative dimensions. Since pain is subjective, the patient's self report provides the most valid measure of the experience

The various measures of pain used are :
1. Visual Analogue scale

2. McGill pain Questionnaire

3. Descriptor differential scale

4. Verbal and Numerical Rating Scales

Visual Analogue Scale

The most common form consists of a scale w ith 10 cm horizontal line w ith tw o end-points labelled 'no pain' and 'w orst pain ever'. The patient is required to place a mark on the 10 cm line at a point that corresponds to the level of pain intensity he currently feels.
Advantages

1. It has ratio scale properties.

2. It is minimally intrusive.

3. It is conceptually simple.

Disadvantages

1. Bias of expectancy for change and reliance on memory.
2. Assumption that pain is a uni – dimensional experience.

Methods of post operative pain relief

1.opiate
a) intramuscular
b) continuous/intermittent intravenous c) Patient controlled Analgesia(PCA) d) Intrathecal
e) epidural
f) Others – oral, sublingual, Transdermal, Rectal

2. Non-narcotic:

Invasive:
a) Regional Anaesthesia
b) Local anaesthetic infiltration c) Cryoanalgesia
d) Continuous interpleural infusion e) Non-invasive:
a) Inhalational
b) Transcutaneous Electrical Nerve Stimulation (TENS)
c) Hypnosis
d) Acupuncture
e) Relaxational technique

Hemodynamic Effects of Agonist-Antagonist Compounds Compared with Morphine

Drug	Cardiac Work load	Blood Pressure	Heart Rate	Pulmonary Artery Pressure
Morphine	↓	↓	=↓	=↓
Buprenorphine	↓	↓	↓	?
Butorphanol	↑	=↑	=	↑
Nalbuphine	↓	=	=↓	=
Pentazocine	↑	↑	↑	↑

MATERIALS AND METHODS

The study w as conducted at Chennai Medical College , in 60 patients undergoing elective low er segment caesarean section.

Study design

Prospective, Randomised, double blind study.

Inclusion Criteria age - 18 and above ASA - I and II patients BMI - <30 kg/m2
Elective lscs informed consent

Exclusion criteria

not satisfying inclusion criteria

Patients posted for emergency surgery

Patients w ith bleeding diathesisPatients w ith local sepsis Platlet count < 1,00,000/µ L Eclampsia

Neurological deficits and Lack of w ritten informed consent

Preoperative evaluation

All the patients w ho w ere included in the study had a clinical examinations of their cardiovascular and respiratory system. The investigations done included Haemoglobin, Bleeding time, Clotting time, Blood Urea and sugar, Urine albumin and sugar to rule out any systemic illness.

The fourty patients w ere randomized into tw o groups consisting of tw enty each namely study Group A and Group B.

Group A : Received bupivacaine and buprenorphine

(n=20)

Group B : Received bupivacaine only (n=20)explained about the procedure to the patients and obtained informed consent. Premedication inj.ondensetran 8mg, inj.ranitidine 50mg intravenously given 30mins before surgery. The height, w eight and Vital signs w ere recorded on the day of surgery. Each patients w ere taught about the Visual Analogue Pain Scale and w ere asked to indicate her level of pain on a 10 cm long Visual Analogue Pain Scale. The patients w ere show n a 10cm long horizontal scale marked from 0-10 and w ere told that 0 represented absolutely no pain and 10 represented the w orst pain they can imagine.

Basic monitoring like pulse oxymeter, ECG, NIBP connected to the patient. Baseline status consisting of the Visual Analogue Score, Pulse rate, systolic and diastolic blood pressure, respiratory rate, oxygen saturation w ere recorded on arrival at operation theatre. Preloaded w ith 20ml/kg of lactated Ringers solution , prior to sub-arachnoid block. Under strict sterile aseptic precaution,after local infiltration w ith 2% lignocaine, sub-arachnoid block w as performed w ith 25G quincke type spinal needle, w ith patient in right lateral decubitus position at L3-L4 intervertebral space and hyperbaric 0.5% bupivacaine 1.7ml+ 0.2ml (60µ g) of inj.buprenorphine in group A and 1.7ml of hyperbaric 0.5% bupivacaine + 0.9% normal saline 0.2ml in group B w ere given. Follow ing subarachnoid block, the patient w as immediately placed in supine position, to prevent aortocaval compression left uterine displacement w as done by keeping a w edge under righthip. O2 4L/min administered to all patients through simple face mask. Bladder catheterised routinely by surgeon.

Itraoperative hypotension w as considered to be present , w henever systolic blood pressure decreased to less than 90mmHg or <20% of the baseline w hichever appeared first and treated w ith ephedrine.bradycardia w as to be treated w ith inj.atropine i.v0.02mg/kg ,if heart rate decresed to <60/min, and any fall in respiratory rate to less than ten per minute w as noted.

The follow ing parameters w ere assessed in the operation theatre

1. Pulse rate , blood pressure, Respiratory rate and oxygen saturation w ere monitored.
2. Dermatomal sensory blockade to pin prick w as evaluated and maximum level of sensory block w as noted.
3. Onset of sensory analgesia time noted.
4. Onset of motor blockade time noted.
5. Total duration of analgesia w as recorded.
6. Pain w as evaluated by **Visual Analogue Scale** devised by **Revill** and **Robinson** (1976). VAS 0 – 10 cm

0 – 2cm - No pain
2 – 4 cm - Mild pain
4 – 6 cm - Moderate pain
6 – 8 cm - Severe pain
8 – 10 cm - Worst pain

If the patient is asleep, it is taken as no pain. Time of first demand analgesia w as noted.

7. Modified **bromage** scale for the onset on motor blockade

0	Free movement of legs and feet , w ith ability to raise extended leg.	None
1	Inabilty to raise extended leg and knee flexion is decreased but full flexion of feet and ankles is present	Partial 33%
2	Inability to raise leg or flex knees, flexion at ankle and feet present	Partial 66%
3	Inability to raise leg, flex knee or ankle or move toes	Complete paralysis

8. sedation score w as noted intra-operatively and post-operatively

Ramsay sedation score

1 = Anxious , agitated and restlessness
2 = Oriented and cooperative
3 = Responds to command only
4 = Brisk response to loud voice and glabellar tap
5 = sluggish to NO response to light glabellar tap or loud auditory stimulus.
6 = No response to pain.

9. Apgar score at 1min and 5min of delivery of the baby

Total score of 8 to 10 = Normal

Score of 4 to 7 = moderate impairment

Score of 0 to 3 = needs immediate resuscitation.

After completion of surgery patient w as shifted to High Depedency Unit for observation and monitored postoperatively for 24 hours.

The follow ing parameters w ere observed post-operatively:
1. Pain assessment – VAS
2. Sedation
3. Pulse rate
4. Blood pressure
5. Respiratory rate

6. Oxygen saturation

7. Time of first demand analgesia- duration of analgesia
8. Side effects like post operative nausea, vomiting, pruritus, respiratory depression, hypotension, bradycardia, sedation

OBSERVATION AND RESULTS

The study w as conducted on a total of sixty patients to ASA I , II. They w ere divided into tw o groups of thirty each

Group A : received 0.2 ml of buprenorphine (60µg) w ith 0.5% hyperbaric bupivacaine 1.7ml

Group B : received 0.2 ml of Normal saline w ith 0.5% hyperbaricbupivacaine 1.7ml

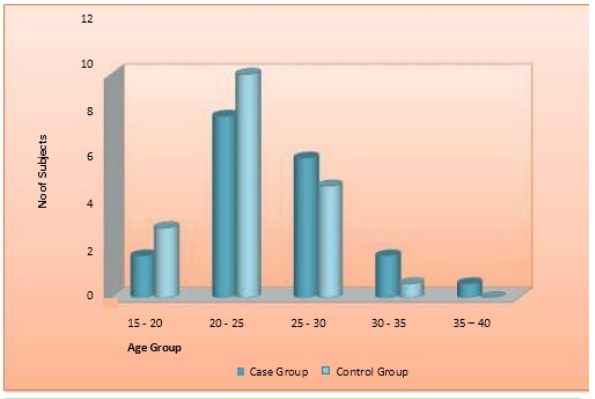
In both patients the volume of solution w as kept constant

Table 1 - Age Distribution

Age	Case Group A		Control Group B		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
15 – 20	03	10.00	05	16.70	08	13.30
20 – 25	13	43.30	16	53.30	29	48.30
25 – 30	10	33.30	08	26.70	18	30.00
30 – 35	03	10.00	01	03.30	04	06.70
35 – 40	01	03.30	-	-	01	01.70
Total	30	100	30	100	30	100

	Group-A	Group-B
Mean	25.57	24.73
Sd	4.51	3.53
t-value	0.80	
Df	58	
p-value	0.43 (Not Significant)	

The mean distribution of cases by age was observed and it shows statistically not significant in groups A and B.



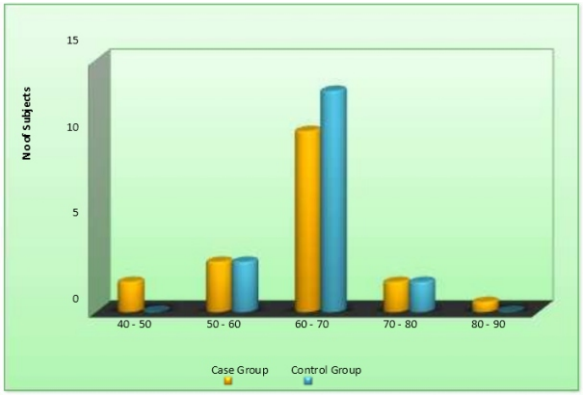


Table 2 - Weight Distribution

Weight	Case Group A		Control Group B	
	Number	Percentage	Number	Percentage
40 – 50	3	10.00	0	-
50 – 60	5	16.70	5	16.70
60 – 70	18	60.00	22	73.30
70 – 80	03	10.00	03	10.00
80 – 90	01	03.70	0	0
Total				

	Case Group A	Control Group B
Mean	64.57	65.90
Sd	8.40	4.74
t-value	0.76	
Df	58	
p-value	0.45 (Not Significant)	

The mean distribution of cases by weight was observed to be statistically not significant between the groups A and B.

Table 3 : Height Distribution

Height	Case Group		Control Group	
	Number	Percentage	Number	Percentage
140 – 145	02	06.70	-	-
145 – 150	01	03.30	02	06.70
150 – 155	11	36.70	11	36.70
155 – 160	15	50.00	15	50.00
160 – 165	01	03.30	02	06.70
Total	30	100	30	100

	Case Group	Control Group
Mean	154.97	155.93
Sd	4.36	3.41
t-value	0.96	
Df	58	
p-value	0.34 (Not Significant)	

The mean distribution of cases by height was observed to be statistically not significant between groups A and B

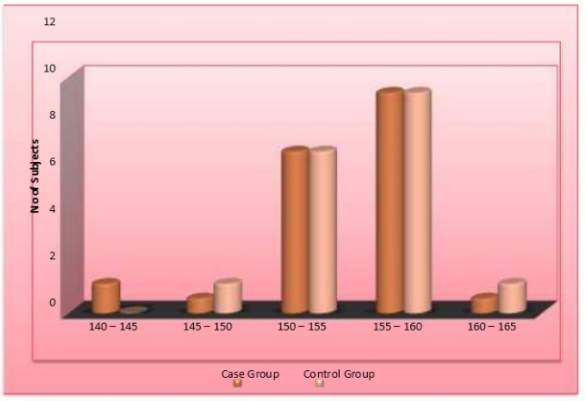


Table-4 Diagnosis

Diagnosis	Case Group		Control Group	
	Number	Percentage	Number	Percentage
Elderly primi	1	3.30	0	-
G2/mobile head	1	3.30	1	3.30
G2/Polyhydramnios	0	-	1	3.30
G2/twin pregnancy	1	3.30	0	-
G2P2/BREECH	2	6.70	0	-
previous lscs	11	36.70	17	56.70
previous lscs/anaemi	2	6.70	3	10.00
previous lscs/PIH	2	6.70	0	-

Primi	1	3.30	0	-
primi/bigbaby	0	-	1	3.30
primi/breech	2	6.70	0	-
primi/mobile head	3	10.00	2	6.70
primi/oligohydramnio	1	3.30	1	3.30
primi/PIH	1	3.30	4	13.30
primi/polyhydramnios	1	3.30	0	-
primi/short stature	1	3.30	0	-
	30	**100**	**30**	**100**

Table-5
ASA Status

ASA	Case Group		Control Group	
	Number	Percentage	Number	Percentage
I	24	80.00	22	73.30
II	6	20.00	8	26.70
Total	30	100	30	100
Chisqure	0.37			
Df	1			
p-value	0.54 (Not Significant)			

ASA status in both grups are statistically are insignificant

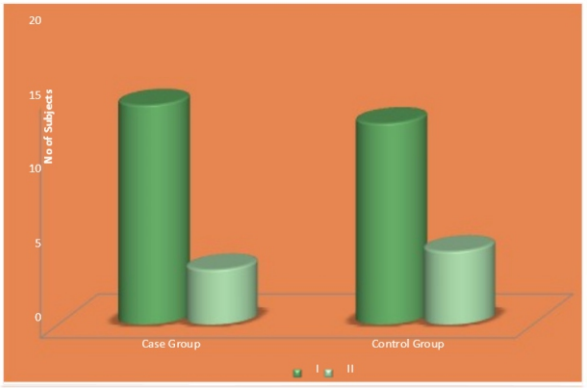


Table-6
VAS

	Case Group	Control Group
Mean	7.90	7.77
Sd	0.31	0.43
t-value	1.39	
Df	58	
p-value	0.17 (Not Significant)	

Preoperative VAS score in both groups are statistically insignificant

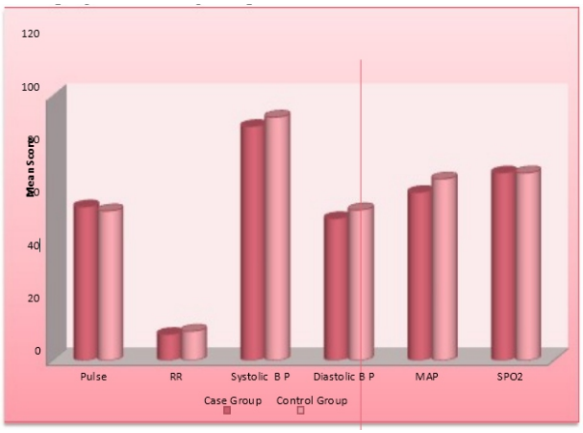
Table-7
Basal

	Case Group Mean ± sd	*Control Group Mean ± sd*	*t-value*	*p-Value df=58*
Pulse	81.07 ± 5.55	78.93 ± 5.72	1.47	0.15*
RR	13.67 ± 1.49	15.40 ± 1.98	3.83	0.000
Systolic B P	123.53 ± 10.94	128.47 ± 8.40	1.96	0.05
Diastolic B P	74.87 ± 9.24	79.47 ± 9.23	1.93	0.06*
MAP	88.67 ± 18.40	95.80 ± 8.05	1.47	0.06*
SPO2	99.00 ± 00.00	99.00 ± 0.00		

* - Not Significant

The preoperative VAS score, base line vital signs i.e. pulse rate, systolic ,diastolis blood pressure, respiratory rate, oxygen saturation w ere monitored and tabulated.

In both groups are statistically notsignificant.



CARDIOVASCULAR CHANGES:

Effects of buprenorphine on the heart rate, respiratory rate and mean arterial pressure in the intraoperative and postoperative period monitored . in both groups haemodynamic stability w as maintained to near normal and statistically not significant. The results are tabulated as

Table-8
Pulse

	Case Group Mean ± sd	Control Group Mean ± sd	t-value	p-Value df=58
PRE	80.60 ± 5.71	78.93 ± 5.72	1.13	0.26*
0 Mint	81.87 ± 6.54	81.20 ± 5.29	0.43	0.67*
1 Mint	84.17 ± 9.44	83.13 ± 6.88	0.48	0.63*
3 Mint	85.00 ± 9.75	85.73 ± 6.66	0.34	0.74*
5 Mint	85.43 ± 11.51	86.20 ± 6.84	0.31	0.76*
10 Mint	86.83 ± 13.11	88.73 ± 6.05	0.72	0.47*
15 Mint	89.07 ± 10.96	89.00 ± 5.00	0.03	0.98*
30 Mint	85.33 ± 9.83	88.67 ± 4.99	0.46	0.65*
45 Mint	85.33 ± 9.30	86.27 ± 5.98	0.46	0.65*
1.00 Hour	82.60 ± 8.14	85.13 ± 5.11	1.44	0.15*
1.30 Hours	81.93 ± 6.38	82.93 ± 5.35	0.66	0.51*
2.00 Hours	80.67 ± 6.77	83.30 ± 5.39	1.98	0 .05
3.00 Hours	80.33 ± 5.73	82.93 ± 4.29	1.98	0.05
4.00 Hours	80.67 ± 5.90	81.27 ± 5.24	0.42	0.68*
5.00 Hours	80.60 ± 5.44	76.40 ± 6.00	2.84	0.01
6.00 Hours	79.87 ± 5.58	75.97 ± 5.89	2.63	0.01
8.00 Hours	81.07 ± 4.72	75.07 ± 5.96	4.32	0.000
12.00 Hours	81.20 ± 5.27	75.20 ± 4.63	4.69	0.000
24.00 Hours	80.67 ± 5.59	75.27 ± 4.88	3.98	0.000

* - Not Significant

There w as no statistically significantchanges betw een study and control group

PULSE CHANGES

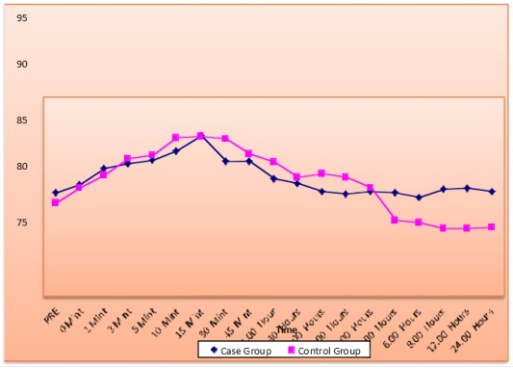


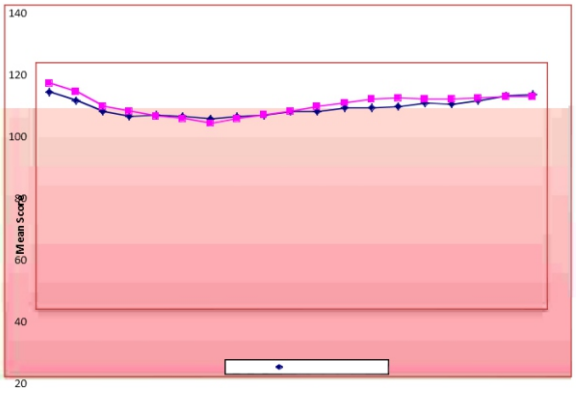
Table-9
RR

	Case Group Mean ± sd	Control Group Mean ± sd	t-value	p-Value df=58
PRE	13.73 ± 1.46	15.40 ± 1.98	3.72	0.000
0 Mint	13.67 ± 1.49	15.73 ± 1.87	4.72	0.000
1 Mint	13.53 ± 1.63	15.60 ± 2.13	4.22	0.000
3 Mint	14.27 ± 1.64	15.93 ± 2.26	3.27	0.002
5 Mint	14.87 ± 1.55	16.07 ± 2.13	2.49	0.02
10 Mint	14.20 ± 1.61	16.00 ± 2.17	3.66	0.001
15 Mint	14.27 ± 1.64	15.80 ± 1.99	3.26	0.002
30 Mint	14.40 ± 1.33	15.80 ± 1.85	3.37	0.001
45 Mint	14.20 ± 1.42	16.47 ± 1.72	5.57	0.000
1.00 Hour	14.00 ± 1.49	15.80 ± 2.12	3.80	0.000
1.30 Hours	13.93 ± 1.70	15.93 ± 1.93	4.26	0.000
2.00 Hours	13.93 ± 1.78	16.20 ± 1.77	4.95	0.000
3.00 Hours	13.93 ± 1.53	16.33 ± 1.67	5.81	0.000
4.00 Hours	13.73 ± 1.36	15.27 ± 1.44	4.24	0.000
5.00 Hours	13.60 ± 1.22	15.07 ± 1.36	4.39	0.000
6.00 Hours	14.27 ± 1.55	14.73 ± 1.44	1.20	0.23
8.00 Hours	14.00 ± 1.66	15.03 ± 1.71	2.37	0.02
12.00 Hours	14.33 ± 1.18	15.40 ± 1.91	2.61	0.01
24.00 Hours	14.60 ± 1.19	15.53 ± 1.94	2.24	0.03

* - Not Significant

There w as reduced respiratory rate in study group w hen compared to control group w hich is statistically significant.

SYSTOLIC BLOOD PRESSURE



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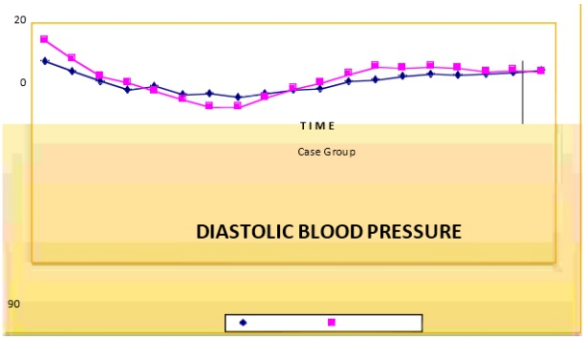

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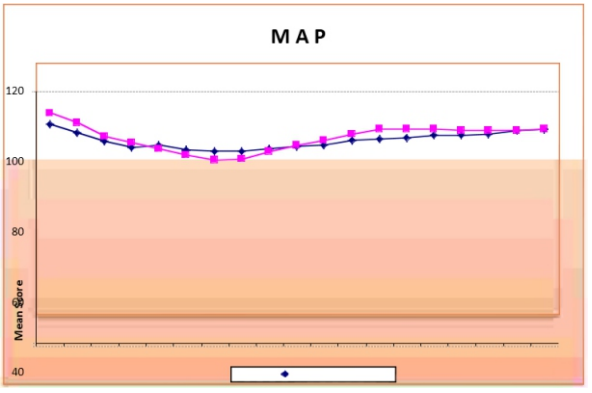
TIME

Case G roup Co ntrol Gro up

Table-11
Diastolic Blood Pressure

	Case Group Mean ± sd	Control Group Mean ± sd	t-value	p-Value df=58
PRE	75.20 ± 8.86	82.87 ± 14.97	2.41	0.02
0 Mint	71.40 ± 7.65	76.00 ± 9.57	2.06	0.04
1 Mint	67.93 ± 7.71	69.73 ± 7.39	0.92	0.36*
3 Mint	64.47 ± 9.65	67.27 ± 8.13	1.22	0.23*
5 Mint	66.00 ± 7.68	64.20 ± 7.25	0.93	0.35*
10 Mint	62.93 ± 8.56	60.73 ± 8.43	1.00	0.32*
15 Mint	63.13 ± 8.48	58.27 ± 7.22	2.39	0.02
30 Mint	61.93 ± 7.85	57.93 ± 5.67	2.26	0.03
45 Mint	63.33 ± 8.11	61.73 ± 5.60	0.89	0.38*
1.00 Hour	64.67 ± 6.88	65.00 ± 5.70	0.20	0.84*
1.30 Hours	64.93 ± 5.98	67.53 ± 6.53	1.61	0.11*
2.00 Hours	67.67 ± 7.36	70.60 ± 6.44	1.64	0.11*
3.00 Hours	68.33 ± 7.03	73.13 ± 6.14	2.82	0.01
4.00 Hours	69.40 ± 7.13	72.93 ± 5.96	2.82	0.01
5.00 Hours	70.40 ± 6.98	73.33 ± 5.16	2.08	0.04
6.00 Hours	70.20 ± 6.67	72.73 ± 6.25	1.85	0.07*
8.00 Hours	70.33 ± 5.15	71.67 ± 7.37	1.52	0.13*
12.00 Hours	71.20 ± 6.23	71.73 ±5.38	0.81	0.42*
24.00 Hours	71.87 ± 6.79	71.47 ± 5.75	0.36	0.72*

* - Not Significant



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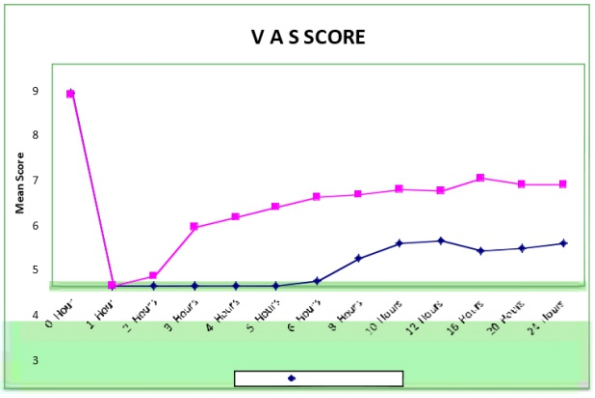
Systolic, diastolic blood pressure and MAP for 24 hours are tabulated above. There w as statistically no significant difference betw een study and control group.

Table-13 mean VAS score between study and control group for 24 hours during the intraoperative and postoperative period.

	Case Group Mean ± sd	Control Group Mean ± sd	t-value	p-Value df=58
0 Hour	7.83 ± 0.38	7.77 ± 0.43	0.64	0.07
1 Hour	-	-	-	
2 Hours	-	0.40 ±0.72	3.03	0.004
3 Hours	0.00	2.40 ± 0.81	16.16	0.000
4 Hours	0.00	2.80 ± 0.61	25.13	0.000
5 Hours	0.00	3.17 ± 0.91	19.00	0.000
6 Hours	0.17 ± 0.38	3.60 ± 1.00	17.53	0.000
8 Hours	1.10 ± 1.03	3.70 ± 0.79	10.96	0.000
10 Hours	1.70 ± 0.83	3.90 ± 1.06	8.91	0.000
12 Hours	1.80 ± 0.85	3.87 ± 1.07	8.91	0.000
16 Hours	1.40 ± 0.50	4.37 ± 1.03	14.16	0.000
20 Hours	1.53 ± 0.09	4.13 ± 1.14	11.44	0.000
24 Hours	1.73 ± 0.45	4.10 ± 1.16	10.46	0.000

* - Not Significant

VAS score is less in study group than in control group , w hich is statistically significant .



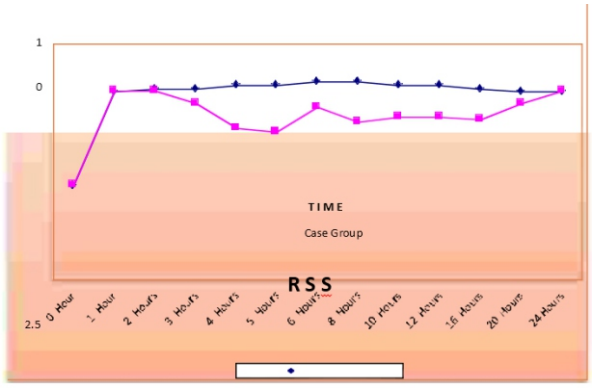


Table-14 RAMSAY SEDATION SCORE

	Case Group Mean ± sd	Control Group Mean ± sd	t-value	p-Value df=58
0 Hour	1.00 ± 0.00	1.00 ± 0.00	-	-
1 Hour	2.00 ± 0.00	2.00 ± 0.00	-	-
2 Hours	2.03 ± 0.18	2.00 ± 0.00	1.00	0.32*
3 Hours	2.03 ± 0.18	1.87 ± 0.35	2.34	0.02
4 Hours	2.07 ± 0.25	1.60 ± 0.50	4.57	0.000
5 Hours	2.07 ± 0.25	1.57 ± 0.50	4.85	0.000
6 Hours	2.10 ± 0.31	1.83 ± 0.38	3.00	0.004
8 Hours	2.10 ± 0.31	1.67 ± 0.48	4.18	0.000
10 Hours	2.07 ± 0.25	1.73 ± 0.45	3.54	0.001
12 Hours	2.07 ± 0.25	1.73 ± 0.45	3.54	0.001
16 Hours	2.03 ± 0.18	1.70 ± 0.47	3.65	0.001
20 Hours	2.00 ± 0.00	1.87 ± 0.35	2.11	0.04
24 Hours	2.00 ± 0.00	2.00 ± 0.00	-	-

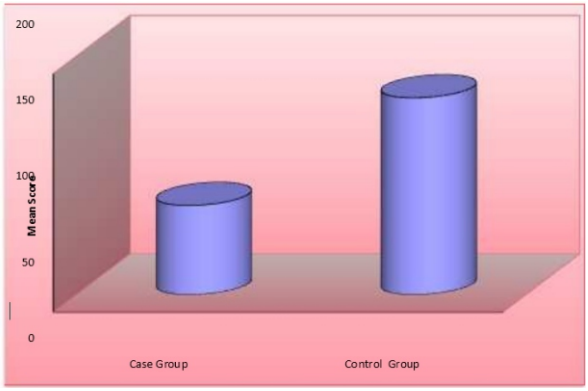
* - Not Significant

Study group patients show increased sedation score w hich is statistically significant comparing to control group.

Table-15
ONSET OF SENSORY ANALGESIA

	Case Group	Control Group
Mean	93.43	206.20
Sd	32.58	40.06
Range	**50 - 192**	**135 – 312**
t-value	**11.96**	
Df	**58**	
p-value	**0.000 (Significant)**	

The mean duration of onset of sensory analgesia in study group is 93.43±SD32.58 seconds. the mean duration in control group is 206.20±SD40.06 seconds. When compared to control group study group patients have increased onset of sensory analgesia w hich is statistically significant



Motor Onset

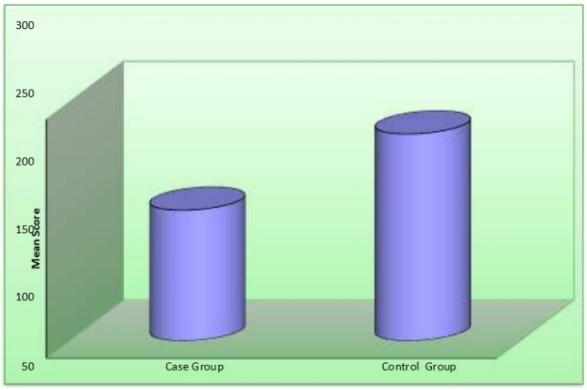


Table-16
Onset of motor block ade

	Case Group	Control Group
Mean	164.03	259.83
Sd	62.11	38.05
Range	**70 – 300**	**180 -360**
t-value	**7.20**	
Df	**58**	
p-value	**0.000 (Significant)**	

Onset of motor blockade in study group is 164.03 seconds w ith SD 62.11 seconds. In control group mean is 259.83seconds w ith SD 38.05 seconds.Onset of motor blockade is earlier in study group w hich is statistically significant w hen comparing to control group.

Table-17
Analgesia Duration

	Case Group	Control Group
Mean	659.63	190.70
Sd	96.33	22.86
Range	**455 - 815**	**152 – 275**
t-value	**25.94**	
Df	**58**	
p-value	**0.000 (Significant)**	

Total duration of analgesia in study group is 659.63±96.33 minutes. In control group is 190.70±22.86 minutes.Duration of analgesia is prolonged in study group w hen compared to control group w hich is significant statistically.

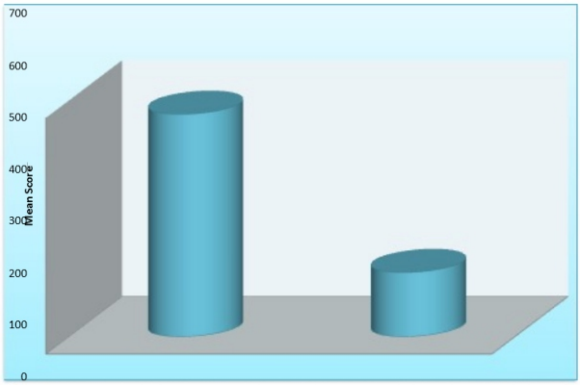
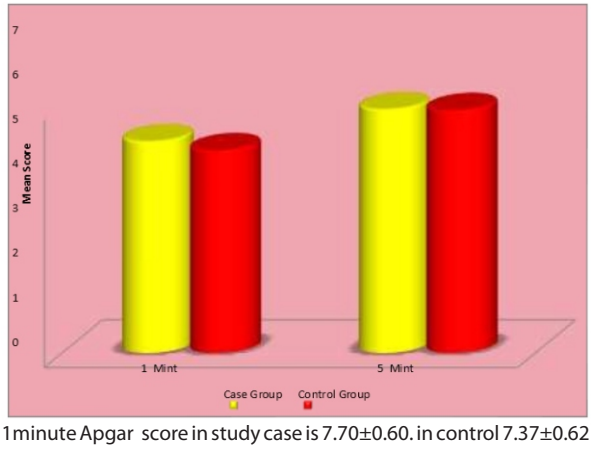


Table-18
APGAR SCORE

	Case Group Mean ± sd	Control Group Mean ± sd	t-value	p-Value df=58
1 Mint	7.70 ± 0.60	7.37 ± 0.62	2.13	0.04
5 Mint	8.87 ± 0.35	8.83 ± 0.38	0.36	0.72*

*** - Not Significant**



1minute Apgar score in study case is 7.70±0.60. in control 7.37±0.62 w hich is significant. But in 5 minute Apgar score in study case 8.87±0.35 and in control case 8.83±0.38 w hich is not significant.

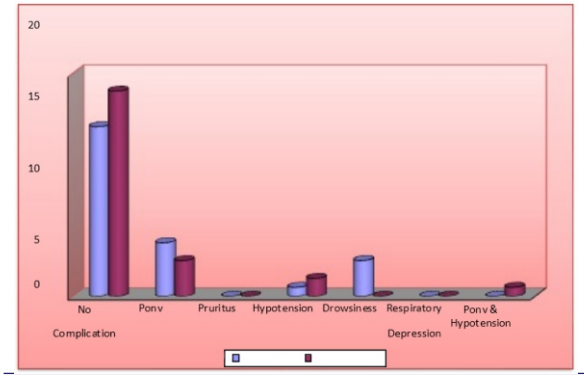


Table-19
Complications

Complications	Case Group		Control Group	
	Number	Percentage	Number	Percentage
No Complication	**19**	**63.31**	**23**	**76.70**
Ponv	**6**	**20.00**	**4**	**13.30**
Pruritus	**0**	**-**	**0**	**-**
Hypotension	**1**	**3.30**	**2**	**6.70**
Drowsiness	**4**	**13.30**	**0**	**-**
Respiratory Depression	**0**	**-**	**0**	**-**
Ponv & Hypotension	**0**	**-**	**1**	**3.30**
Chi-square	**6.11**			
Df	**4**			
p-value	**0.19 (Not Significant)**			

6 patients(20%) in study group and 4(13.30) patients in control group has PONV. 13.30% of patients in study group has drow siness.

Overall complications are statistically not significant in both groups.

CONCLUSION &SUMMARY

A clinical study w as done to evaluate the efficacy , duration of post operative pain relief and to know the quality of analgesia provided by intrathecal opioids added to local anaesthetic agents.

The study w as undertaken in 60 patients of ASA I and II posted for elective cesarean section for post operative pain relief.

GroupA – 30 patients – received 1.7ml of hyperbaric 0.5% bupivacaine w ith buprenorphine 0.2ml(60µ g).
GroupB – 30 patients – received 1.7ml of hyperbaric 0.5 % bupivacaine w ith 0.2ml 0f 0.9% normal saline.

- Onset of sensory analgesia is significantly increased(1-31/2min) in patients receiving buprenorphine than control group.
- Onset of motor blockade also significantly increased in study group 1-5min.
- Postoperative analgesia w as upto 13-14hours in groupA(study)w ith SD.96.33min than control group B 21/2 – 41/2 hours.
- There w as no statistically significant changes in pulse rate, respiratory rate, blood pressure , oxygen saturation and neonatal apgar score.

There w as no respiratory depression in study group and few patients had a sedation score >3 w hich is statistically significant. There w as no statistically significant complications in both groups

Intrathecal buprenorphine is suitable drug for postoperative analgesia in patients undergoing cesarean section, it enhances onset of sensory blockade w ithout affecting motor blockade and sympathetic activity. Anaesthesia w as superior w hen buprenorphine is mixed w ith bupivacaine (0.5%) as compared to bupivacaine alone. The benefits of opiates are significant w hen used intrathecally and outw eighs the side effects. Subarachnoid block is easy to perform , more predictable and the drug is easily available. So this combination of drugs can be used for postoperative analgesia in elective cesarean section.

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