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Original Research Paper

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A COMPARATIVE STUDY OF DEXMEDETOMIDINE AND FENTANYL AS AN ADJUVANT TO EPIDURAL BUPIVACAINE IN INFRAUMBILICAL SURGERIES

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ABSTRACT **Background** Early postoperative mobilization, minimal pain and recovery are desirable features of modern anaesthesia post surgery. Epidural anaesthesia is most commonly used for providing postoperative analgesia.To achieve this, larger volume of local anaesthetics are used epidurally which increased the possibility of local anaesthetic toxicity. To reduce the local anaesthetic toxicity adjuvants to epidural infusion such as opioids, α2 agonists, benzodiazipines are added. **Objective:** Present study is done to evaluate the efficacy of dexmedetomidine and fentanyl for studying the duration of postoperative analgesia and sedation. **Methodology:** 80 patients of ASA grade I and II posted for elective lower abdominal and lower limb surgeries were selected for our study.They were premedicated with table tranitidine 150mg and tablet alprazolam 0.25mg night prior to surgery.Baseline parameters of vitals were recorded. Patients were preloaded with Ringer lactate solution of 15ml/kg . Under strict aseptic precautions, epidural catheter was introduced at L3-L4 space and test dose was given using 3ml of 2% Lignocaine with adrenaline followed bySAB given with injection hyperbaric bupivacaine 0.5% 15mg. After 90 min of subarachnoid block they were injected either 25ml of 0.125% bupivacaine with 0.5μg/kg dexmedetomidine or 25 ml 0.125% bupivacaine with 1μg/kg fentanyl epidurally at a rate of 5ml/hour using syringe pump. Rescue analgesia was supplemented with injection morphine 0.1mg/kg through intravenous route. Duration of analgesia , hemodynamic parameters and sedation score were noted. Analgesic effect was noted by visual analogue scale. Patients were observed for side effects **Results:** Duration of postoperative analgesia, hemodynamic stability and sedation were better with dexmedetomidine than fentanyl. **Conclusion:** Dexmedetomidine is a better adjuvant to epidural bupivacaine than fentanyl in terms of prolonged duration of analgesia with better sedation and hemodynamic parameters.

KEYWORDS : Epidural, Dexmedetomidine, Fentanyl, Postoperative analgesia.

INTRODUCTION

Early postoperative mobilization, minimal pain, discomfort and recovery are the desirable features of the modern surgeries. Epidural anaesthesia is most commonly used for providing intraoperative anaesthesia and postoperative analgesia.[1,2,3,4]

Epidural analgesia has the ability to maintain continuous analgesia after placement of an epidural catheter, thus making it suitable for continuous post-operative pain relief. Central neuraxial blockade causes variation in heart rate and blood pressure which results from decreased sympathetic tone and unopposed parasympathetic tone.

To reduce the local anaesthetic toxicity due to large volumes, adjuvants to epidural infusion such as opioids, α2 agonists, benzodiazipines were added.[6] Opioids have analgesic properties. Alpha-2 agonistshave both analgesic and sedative properties.

When comparing opioid analgesia through intravenous or epidural route, epidural route has better pain relieving property.[7] Opioids provide a dose sparing effect of local anaesthetic and superior analgesia but there is always a possibility of an increased incidence of pruritis, urinary retention, nausea, vomiting and respiratory depression. Among opioids, fentanyl is commonly used which acts as an agonist at μ-opioid receptors.[8]

Dexmedetomidine is a potent and highly selective alpha2-adrenergic agonist. It not only decreases sympathetic tone and attenuate the stress response to surgery, but also causes sedation and analgesia. Dexmedetomidine suppresses the activity in the descending noradrenergic pathway, which modulates nociceptive neurotransmission, terminates propagation of pain signals leading to analgesia. It can cause hypotension, bradycardia, nausea, vomiting.

Keeping the benefits of epidural adjuvants to bupivacaine in consideration, present study is being undertaken to evaluate the duration and analgesic efficacy of dexme detomidine 0.5μg/kg in comparison to fentanyl 1μg/kg.

METHODS

This is a prospective, randomized, single centre study conducted at Mandya institute of medical sciences, Mandya, Karnataka, a tertiary health care centre. After receiving approval from institutional ethics committee, a total of 80 patientsaged 18-60 years with ASA class I or II, planned for elective lower abdominal and lower limb surgeries were included in our study.

Patient with any contraindication for neuraxial block, allergy to the study drug, coagulation disorders, respiratory insufficiency, patients on alpha-2 antagonist treatment,ASA class III,IV were excluded from the study.

They were randomized based on allocation sequence by computer generated random number tables to one of two groups comprising 40each.

- Study group GD -received 25ml 0.125% bupivacaine + 0.5μg/kg dexmedetomidine epidural infusion at a rate of

5ml/hour

- Study group GF- received 25ml 0.125% bupivacaine + 1μg/kg Fentanyl epidural infusion at a rate of 5ml/hour

Result values were recorded using a pre-set Proforma. All patients underwent PAE on the previous day of surgery. Investigations like CBC, FBS or RBS, coagulation profile, blood urea, serum creatinine, chest X-ray and ECG were done. All the patients were visited in the previous night of proposed surgery and given tab alprazolam 0.25mg and tab ranitidine 150mg at bed time orally.

Patients were shifted to the procedure room on the day of surgery. Drug and equipment necessary for resuscitation and general anaesthesia were kept ready.

An IV line was secured using 18G cannula and 15ml/kg of RL infusion was given for all patients half an hour before anaesthetic procedure as pre loading. Base line blood pressure, heart rate and respiratory rate and SPO2 were noted.

Equipments necessary for combined spinal and epidural anaesthesia were checked and kept ready. The patient was placed in lateral or sitting position. With all aseptic measures the skin over L3-L4 interspace was anesthetized with 2ml of 2% Lignocaine.

An 18G Touhy needle was inserted through this space and advanced slowly until it entered epidural space which was confirmed by loss of resistance to air technique. Then a 20G epidural catheter was passed through the needle into epidural space and secured. 3ml of 2% Lignocaine with adrenaline 1:200000 was given as test dose to exclude intravascular or intrathecal placement of catheter.

Then the patients were administered 0.5% hyperbaric bupivacaine 15mg intrathecally and time to attain sensory block upto T10 dermatome was noted in all patients.

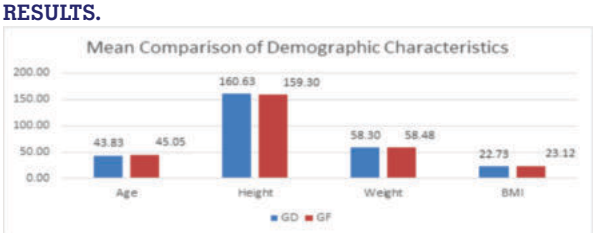
After 90 min of subarachnoid block, group GD received 25ml of 0.125% bupivacaine with 0.5μg/kg dexmedetomidine and group GF received 25 ml 0.125% bupivacaine with 1μg/kg fentanyl epidurally at a rate of 5ml /hour using syringe pump.Intra operative and post-operative complications (nausea, vomiting, hypotension, bradycardia) were monitored and treated accordingly.

After starting epidural infusion patients were asked to point out the pain score on the VAS. This was carried out at regular intervals.

Rescue analgesia was supplemented with injection morphine 0.1mg/kg through intravenous route, when patients complained of pain.

Hypotension was defined as 20% fall in mean arterial pressure from baseline and was treated with intravenous fluids and intravenous injection mephentermine 6mg. Bradycardia was defined as 20% fall in heart rate from baseline and was treated with intravenous injection atropine 0.6 mg. In case of failure of epidural block and conversion to general anesthesia, those cases were excluded from the study.

RESULTS.



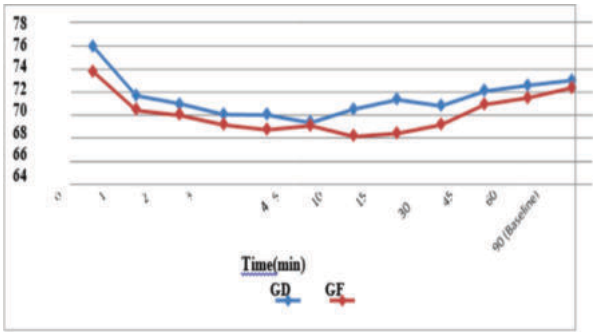
Graph 1: Mean Comparison of Demographic Characteristics

In the study there was no significant difference in mean age, height ,weight and BMI between two groups.

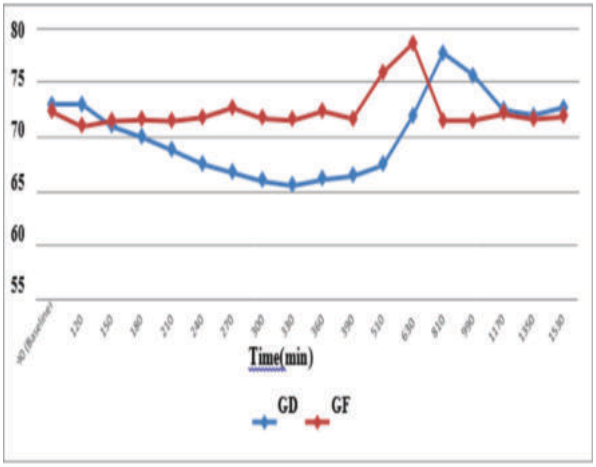
Table 1: Mean heart rate comparison between two groups

Time intervals (min)	GD		GF		Mean Difference	P-Value
	Mean ± SD	Median	Mean ± SD	Median		
0	75.93 ± 7.05	76.00	73.75 ± 7.08	72.00	2.18	0.088
1	71.68 ± 8.48	70.00	70.43 ± 8.27	70.00	1.25	0.521
2	70.98 ± 8.64	69.50	70.00 ± 8.74	68.50	0.98	0.531
3	70.08 ± 8.39	68.00	69.18 ± 7.87	68.00	0.90	0.54
4	70.05 ± 7.42	68.50	68.78 ± 7.69	68.00	1.28	0.38
5	69.38 ± 6.41	69.50	69.10 ± 7.84	68.00	0.28	0.53
10	70.53 ± 7.23	68.50	68.45 ± 7.98	67.50	2.08	0.084
15	71.33 ± 7.11	69.00	69.28 ± 7.86	68.00	2.05	0.056
30	70.80 ± 6.14	71.00	69.18 ± 8.65	68.00	1.63	0.071
45	72.08 ± 6.07	72.00	70.90 ± 8.32	70.00	1.18	0.091
60	72.58 ± 5.62	72.00	71.78 ± 7.72	70.00	0.80	0.072
90	73.00 ± 5.29	74.00	72.33 ± 7.66	71.00	0.68	0.084
120	73.00 ± 6.04	73.00	71.00 ± 7.59	70.00	2.00	0.06
150	71.00 ± 4.68	71.00	71.53 ± 7.00	71.00	-0.53	0.717
180	69.98 ± 4.28	70.00	71.63 ± 5.95	71.00	-1.65	0.324
210	68.80 ± 3.91	69.50	71.53 ± 4.87	70.00	-2.73	0.019
240	67.58 ± 3.46	68.00	71.80 ± 4.45	71.00	-4.23	<0.0001
270	66.80 ± 3.40	66.50	72.68 ± 4.12	72.00	-5.88	<0.0001
300	66.00 ± 3.64	67.00	71.73 ± 3.67	70.00	-5.73	<0.0001
330	65.60 ± 4.01	66.00	71.58 ± 3.17	70.50	-5.98	<0.0001
360	66.18 ± 3.73	66.00	72.38 ± 2.37	72.00	-6.20	<0.0001
390	66.50 ± 3.48	68.00	71.70 ± 2.82	71.00	-5.20	<0.0001
510	67.48 ± 3.14	68.00	75.93 ± 5.59	74.00	-8.45	<0.0001
630	71.95 ± 4.52	72.00	78.55 ± 6.92	78.00	-6.60	<0.0001
810	77.65 ± 4.63	78.00	71.55 ± 3.57	71.00	6.10	<0.0001
990	75.63 ± 3.65	74.00	71.55 ± 3.34	70.50	4.08	<0.0001
1170	72.50 ± 3.47	72.00	72.13 ± 2.45	72.00	0.38	0.214
1350	72.00 ± 2.95	72.00	71.65 ± 2.70	71.50	0.35	0.267
1530	72.68 ± 2.93	72.00	71.88 ± 2.31	72.00	0.80	0.034

In our study, there was statistically significant difference in mean heart rate between the 2groups after 2 hours (210min) of start of epidural infusion till 15 hours (990 min). Mean heart rate was significantly high in group GF compared to group GD.



Graph2: Line diagram showing mean heart rate comparison before start of epiduralinfusion



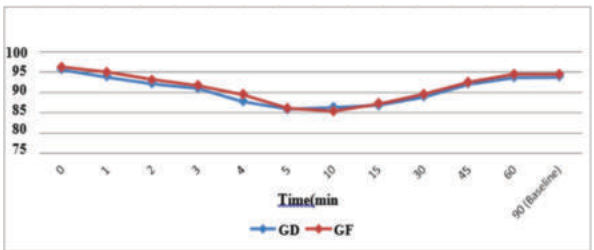
Graph3: Line diagram showing mean heart rate comparison after start of epiduralinfusion.

In the study there was no statistically significant difference in mean arterial blood pressure between two groups at all time intervals till the baseline. There was statistically significant difference inmeanarterial blood pressure after start of epiduralinfusion.

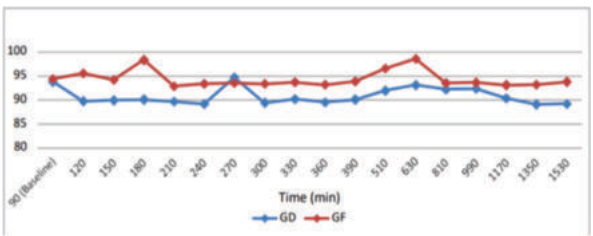
Mean arterial blood pressure was significantly high ingroup GF compared togroup GD.

Table 2: Comparison of MAP between GD and GF

Time intervals (min)	GD		GF		Mean Difference	P-Value
	Mean ± SD	Median	Mean ± SD	Median		
0	95.63 ± 5.8	95.00	96.18 ± 4.45	96.00	-0.55	0.565
1	93.83 ± 5.66	93.00	94.93 ± 4.12	95.00	-1.10	0.186
2	92.18 ± 6.76	89.00	93.08 ± 3.64	92.50	-0.90	0.050
3	91.03 ± 5.17	90.00	91.63 ± 3.47	92.00	-0.60	0.301
4	87.73 ± 5.27	87.00	89.38 ± 3.36	89.50	-1.65	0.058
5	85.85 ± 5.98	86.50	86.03 ± 3.7	87.00	-0.18	0.911
10	86.2 ± 4.89	86.00	85.35 ± 3.08	85.50	0.85	0.251
15	86.85 ± 4.74	86.50	87.13 ± 3.03	87.00	-0.28	0.858
30	88.85 ± 5.31	87.00	89.53 ± 2.56	89.00	-0.68	0.125
45	92.05 ± 5.88	90.00	92.48 ± 2.4	92.50	-0.42	0.100
60	93.7 ± 4.03	94.00	94.4 ± 3.52	94.00	-0.70	0.611
90	93.83 ± 4.74	93.50	94.43 ± 3.97	94.00	-0.60	0.511
120	89.78 ± 5.42	89.00	95.58 ± 3.06	95.00	-5.80	<0.0001
150	90 ± 4.69	89.50	94.25 ± 3.45	95.00	-4.25	<0.0001
180	90.13 ± 5.05	89.50	98.4 ± 31.41	93.00	-8.28	<0.0001
210	89.73 ± 4.59	89.00	92.93 ± 3.3	93.00	-3.20	<0.0001
240	89.2 ± 5.05	88.50	93.43 ± 3.1	93.00	-4.22	<0.0001
270	94.75 ± 32.09	89.00	93.55 ± 3.17	93.00	1.20	<0.0001
300	89.43 ± 4.61	89.50	93.4 ± 3.66	93.00	-3.98	<0.0001
330	90.2 ± 5.01	90.00	93.73 ± 3.35	93.00	-3.52	<0.0001
360	89.63 ± 5.59	88.00	93.2 ± 3.52	93.00	-3.58	<0.0001
390	90.13 ± 5.1	89.00	93.95 ± 3.39	93.00	-3.83	<0.0001
510	92.03 ± 5.54	91.00	96.58 ± 4.86	95.50	-4.55	<0.0001
630	93.15 ± 7.3	90.50	98.63 ± 4.6	99.50	-5.47	<0.0001
810	92.28 ± 3.67	92.00	93.55 ± 3.09	93.00	-1.27	0.045
990	92.4 ± 5.5	91.00	93.7 ± 3.09	94.00	-1.30	0.047
1170	90.4 ± 4.83	90.00	93.13 ± 3.24	93.00	-2.72	0.001
1350	89.13 ± 3.46	88.00	93.23 ± 3.35	93.00	-4.10	<0.0001
1530	89.28 ± 3.63	89.00	93.8 ± 3.01	93.00	-4.52	<0.0001



Graph4: Line diagram showing MAP comparison before start of epiduralinfusion

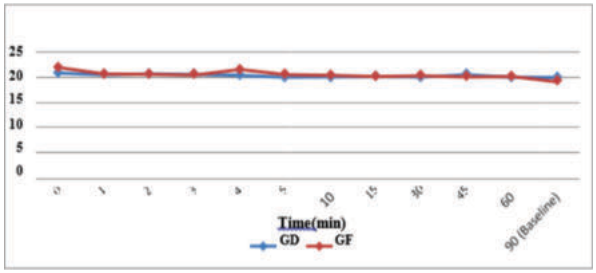


Graph5: Line diagram showing MAP comparison after start of epiduralinfusion

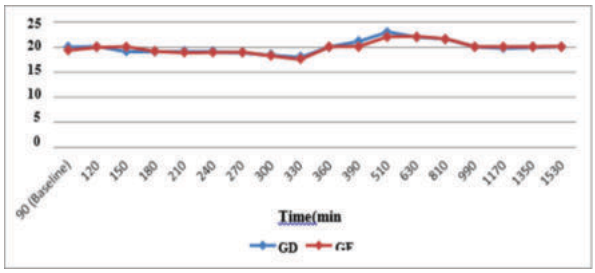
Table3 :Comparison of Respiratory Rate between GD and GF

Time intervals (min)	GD		GF		Mean Difference	P-Value
	Mean ± SD	Median	Mean ± SD	Median		
0	20.95 ± 1.28	20.00	21.95 ± 0.32	22.00	-1.00	<0.0001
1	20.58 ± 0.87	20.00	20.73 ± 0.96	20.00	-0.15	0.519
2	20.73 ± 0.91	20.00	20.68 ± 0.94	20.00	0.05	0.708
3	20.63 ± 0.81	20.00	20.58 ± 0.87	20.00	0.05	0.599
4	20.38 ± 0.70	20.00	21.58 ± 0.50	22.00	-1.20	<0.0001
5	20.00 ± 0.00	20.00	20.60± 0.50	21.00	-0.60	<0.0001
10	20.05 ± 0.22	20.00	20.50 ± 0.64	21.00	-0.45	<0.0001
15	20.13 ± 0.40	20.00	20.25 ± 0.44	20.00	-0.13	0.093
30	20.03 ± 0.16	20.00	20.38 ± 0.49	20.00	-0.35	<0.0001
45	20.58 ± 1.78	20.00	20.18 ± 0.38	20.00	0.40	0.133
60	20.00 ± 0.00	20.00	20.25 ± 0.44	20.00	-0.25	0.001
90	19.93 ± 0.92	20.00	19.25 ± 0.98	20.00	0.68	0.001
120	20.03 ± 0.80	20.00	19.88 ± 0.91	20.00	0.15	0.532
150	19.03 ± 0.97	19.00	20.00 ± 0.96	20.00	-0.98	<0.0001
180	19.03 ± 1.00	19.50	19.05 ± 0.78	19.00	-0.03	0.946
210	19.03 ± 1.00	19.50	18.78 ± 1.10	18.00	0.25	0.257
240	18.98 ± 0.77	19.00	18.85 ± 0.86	19.00	0.13	0.455
270	18.78 ± 0.66	19.00	18.93 ± 0.76	19.00	-0.15	0.389
300	18.30 ± 0.72	18.00	18.15 ± 0.36	18.00	0.15	0.113
330	17.93 ± 0.69	18.00	17.50 ± 1.78	18.00	0.43	0.071
360	20.00 ± 0.00	20.00	19.95 ± 0.32	20.00	0.05	0.317
390	21.05 ± 1.01	22.00	20.05 ± 0.32	20.00	1.00	<0.0001
510	22.90 ± 1.01	22.00	21.95 ± 0.32	22.00	0.95	<0.0001
630	21.85 ± 0.53	22.00	22.00 ± 0.00	22.00	-0.15	0.079
810	21.55 ± 0.85	22.00	21.5 ± 0.88	22.00	0.05	0.794
990	20.00 ± 0.00	20.00	19.98 ± 0.16	20.00	0.02	0.317
1170	19.73 ± 0.60	20.00	19.95 ± 0.22	20.00	-0.22	0.039
1350	19.88 ± 0.46	20.00	20.00 ± 0.00	20.00	-0.13	0.079
1530	20.05 ± 0.71	20.00	20.03 ± 0.16	20.00	0.03	0.566

In the study there was no statistically significant difference in mean respiratory rate between two groups at all time inter valsexceptat baseline 4,5,10,30,150,390and510minutes.



Graph 6:Line diagram showing mean respiratory rate comparison before start of epiduralinfusion

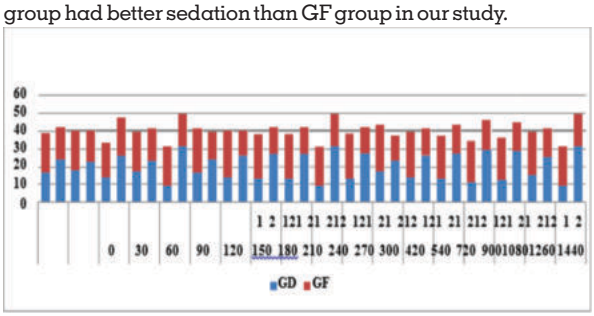


Graph7:Line diagram showing mean respiratoryrate comparison after start of epiduralinfusion

Table4 Comparison of Sedation between GD and GF

Timeintervals(min)	SedationScore	Group				Chi-Square	df	P-value
		GD		GF				
		Count	%	Count	%			
0	1	16	40.0	22	55.0	1.805	1	0.179
	2	24	60.0	18	45.0			
30	1	18	45.0	22	55.0	0.800	1	0.371
	2	22	55.0	18	45.0			
60	1	14	35.0	19	47.5	1.289	1	0.256
	2	26	65.0	21	52.5			
90	1	17	42.5	22	55.0	1.251	1	0.263
	2	23	57.5	18	45.0			
120	1	9	22.5	22	55.0	8.901	1	0.003
	2	31	77.5	18	45.0			
·150	1	16	40.0	25	62.5	4.053	1	0.044
	2	24	60.0	15	37.5			
180	1	14	35.0	26	65.0	7.200	1	0.007
	2	26	65.0	14	35.0			
210	1	13	32.5	25	62.5	7.218	1	0.007
	2	27	67.5	15	37.5			
240	1	13	32.5	25	62.5	7.218	1	0.007
	2	27	67.5	15	37.5			
270	1	9	22.5	22	55.0	8.901	1	0.003
	2	31	77.5	18	45.0			
300	1	13	32.5	25	62.5	7.218	1	0.007
	2	27	67.5	15	37.5			
420	1	17	42.5	26	65.0	4.073	1	0.044
	2	23	57.5	14	35.0			
540	1	14	35.0	25	62.5	6.054	1	0.014
	2	26	65.0	15	37.5			
720	1	13	32.5	24	60.0	6.084	1	0.014
	2	27	67.5	16	40.0			
900	1	11	27.5	23	57.5	7.366	1	0.007
	2	29	72.5	17	42.5			
1080	1	12	30.0	24	60.0	7.273	1	0.007
	2	28	70.0	16	40.0			
1260	1	15	37.5	24	60.0	4.053	1	0.044
	2	25	62.5	16	40.0			
1440	1	9	22.5	22	55.0	8.901	1	0.003
	2	31	77.5	18	45.0			

A teach time intervals, maximum sedation score was 2. Percent age of maximum sedation score was better in GD group when compared to GF group at each time interval. GD group had better sedation than GF group in our study.

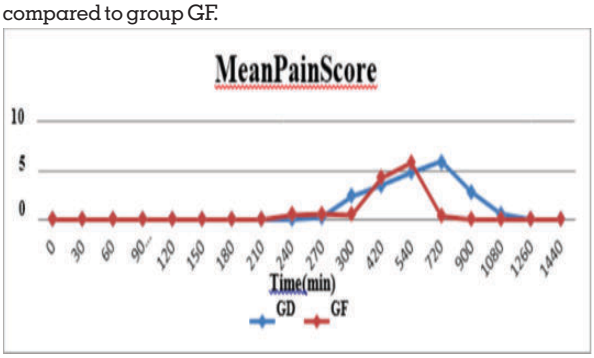


Graph8:Bar diagram showing means edation score comparison between two groups.

Table5: Comparison of mean Pain Score between GD and GF

Time intervals (min)	GD		GF		Mean Difference	P -Value
	Mean ±SD	Median	Mean ±SD	Median		
0	0±0	0.00	0±0	0.00		
30	0±0	0.00	0±0	0.00		
60	0±0	0.00	0±0	0.00		
90	0±0	0.00	0±0	0.00		
120	0±0	0.00	0±0	0.00		
150	0±0	0.00	0±0	0.00		
180	0±0	0.00	0±0	0.00		
210	0±0	0.00	0±0	0.00		
240	0±0	0.00	0.48±0.55	0.00	-0.48	<0.0001
270	0.23±0.62	0.00	0.55±0.64	0.50	-0.33	0.002
300	2.35±0.83	2.50	0.48±0.72	0.00	1.88	<0.0001
420	3.48±0.60	4.00	4.25±1.41	4.00	-0.78	0.022
540	4.78±0.83	5.00	5.80±1.30	6.00	-1.03	<0.0001
720	5.90±1.53	6.50	0.38±1.21	0.00	5.53	<0.0001
900	2.80±2.30	2.00	0±0	0.00	2.80	<0.0001
1080	0.55±0.50	1.00	0±0	0.00	0.55	<0.0001
1260	0±0	0.00	0±0	0.00		
1440	0±0	0.00	0±0	0.00		

In the study there is significant difference in pain score between group GD and GFfrom 240 min to 1080 min after start of epidural infusion. Pain score was less in groupGD compared to group GF.

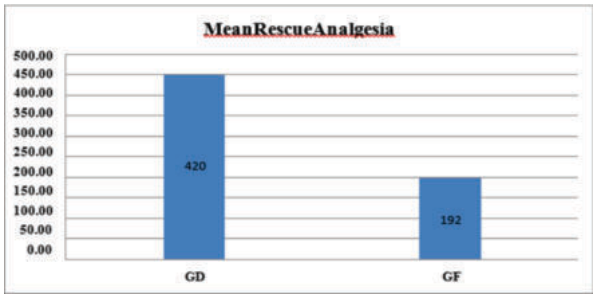


Graph9:Line diagram showing mean pain score comparison after start of epiduralinfusion

Table6: Comparison of Rescue Analgesia between GD and GF

	GD		GF		Mean Difference	P-Value
	Mean± SD	Median	Mean± SD	Median		
Rescue Analgesia(min)	420±109.39	420.00	192.75± 54.11	220.00	259.25	<0.0001

Mean time to first feeling of pain or rescueanalgesia in group GDwas420 ±109.39min and in group GF was 192.75 ± 54.11 min. There was significant difference in meantime to first feeling of pain or rescue analgesia requirement between two groups. Group GF requiredrescue analgesiaearlier than group GD.



Graph10:Bar diagram showing Mean comparison of time to first feeling of pain or rescueanalgesia between two groups.

DISCUSSION

We conducted astudy on 80 patients comparinghemodynamic changes,duration of analgesia and sedation. Group GD-25ml 0.125% bupivacaine with 0.5μg/kgdexmedetomidine epiduralinfusion at a rate of 5ml/hour and Group GF-25ml 0.125% bupivacaine with 1μg/kg fentanyl epidural infusion at a rateof5ml/hour.

DEXMEDETOMIDINE is a potent and highly selective α-2-adrenoceptor agonist used as an adjuvant to local anaesthetic to provide postoperative analgesia. We in our study used 0.5μg/kg dexmedetomidine along with 25 ml 0.125% bupivacaine in group GD .

In our study conducted, we observed that dexmedetomidine is a better adjuvant for epidural analgesia. We noticed that dexmedetomidine when used along with bupivacaine gave satisfactory analgesia than fentanyl which corelates with the study conducted by Arnab. P et al[9],where it was stated that dexmedetomidine when used in combination with bupivacaine was more effective than fentanyl.

We came to a conclusion that group GD who received dexmedetomidine were much more comfortable with the quality of analgesia than group GF who received fentanyl in terms of analgesic efficacy.

On comparision of duration of analgesia,we observed similar results as that of study conducted by Sarkar A .et al[10] who stated that duration of analgesia was more with group receiving dexmedetomidine than group receiving fentanyl .

Sedation score was better with group GD who received dexmedetomidine in our study and similar findings were found in the study conducted byArnab. P et al[9].

In this study 40 patients were studied in group GF who received fentanyl as an adjuvant. In a study conducted by Arnab paul, compared the effect of dexmedetomidine and fentanyl as an adjuvant to epidural bupivacaine and also concluded that duration of analgesia with fentanyl was shorter which was similar to the result obtained in our study.

Requirement of rescue analgesia was earlier in group GF

compared to group GD, which correlates to the study conducted by Sarkar et al[2].

Dexmedetomidine as an adjuvant to bupivacaine provides better hemodynamics compared to fentanyl as adjuvant to epidural bupivacaine as the heart rate and mean arterial pressures are lower in GD group compared to GF group in our study. However the study conducted by Arnab P et al[9], stated that bradycardia was significant than hypotension even though hypotension was noted in both the groups receiving dexmedetomidine and fentanyl.

The dose of dexmedetomidine used in our study was 0.5 μ/kg which did not cause significant hypotension and bradycardia, however the study conducted by Arnab P et al[9], found significant bradycardia than hypotension whoused 1ml of 100μg Dexmedetomidine with 0.25% bupivacaine.

RESULTS:

Postoperative analgesia,hemodynamic stability and sedation score were better with dexmedetomidine than fentanyl.

CONCLUSION

Dexmedetomidine is a better adjuvant to epidural bupivacaine than fentanyl in terms of prolonged duration of analgesia with better sedation score and hemodynamic parameters with lesser side effects.

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