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Research Article

To Compare the Vas Score of Dexmedetomidine and Clonidine as an Adjuvant to Intrathecal Bupivacaine in Patients Undergoing Total Abdominal Hysterectomy

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Abstract:

Background: Spinal anaesthesia is commonly used in gynaecological surgeries, with Bupivacaine being the most commonly used anaesthetic. Bupivacaine, on the other hand, has a shorter duration of action. This clinical study was conducted to evaluate the behaviour of intrathecal clonidine and dexmedetomidine as an adjuvant to bupivacaine in augmenting block characteristics in patients undergoing gynaecological procedures.

Methods: A prospective randomized single blind study was conducted in the Department of Anesthesia IGMC SHIMLA at Kamla Nehru state hospital.

Results: In Group C, Mean VAS score was 1±0 at 30 mins, 60 mins and 90 mins, however it increased to 2±0 at 120 mins, 150 mins, 180 mins and 210 mins. After 240 mins, VAS started increasing more in group C and at 270 mins mean VAS score significantly increased to 3±0 and then to 3.11±0.32, 3.63±0.49, 3.80±0.41 at 330 mins, 360 mins and 390 mins respectively. In Group D, Mean VAS score increased from 1± 0 at baseline and 60 mins to 1.04±0.21, 1.98±0.15 2± 0, 2.07±0.25, 2.13±0.34, 2.98±0.15, 3±0, 3.02±0.15, 3.27±0.45 and 3.81±0.39 3.81±0.39 at 90 mins, 120 mins, 150 mins, 180 mins, 210 mins, 240 mins, 270 mins, 300 mins, 330 mins, 360 mins and 390 mins respectively.

Conclusion: When compared between the groups, mean VAS score was significantly more in Group C at 240 mins, 330 mins and 360 mins($p \leq 0.021$)

Keywords: Dexmedetomidine, Clonidine, Bupivacaine, VAS score

Introduction

α_2-adrenergic agonists drugs (DEX and clonidine) are centrally acting nonopioids analgesics which provide analgesia by activating $\alpha 2$ adrenergic receptors on the sympathetic preganglionic neurons that mediate

a reduction in norepinephrine release (via a negative feedback mechanism).

Clonidine, a selective partial α_2-adrenergic agonist, is being evaluated as an adjuvant to intrathecal local anesthetics in 15-45µg intrathecal dose with varying results[1]. DEX, a new, highly specific, potent, and selective α_2-adrenergic agonist, is under evaluation as it provides stable hemodynamic conditions and good quality of intraoperative and prolonged postoperative analgesia with minimal side effects.

DEX has a higher affinity for α2 receptors than clonidine. It is 7 to 8 times more potent than clonidine and is associated with fewer hemodynamic and systemic side effects at equivalent doses. A dose of 3 µg of intrathecal DEX was found to be equipotent with 30 µg of clonidine[2].

DEX is being safely used as an adjuvant for subarachnoid block with varying results. Bradycardia and hypotension are the most common side effects of intrathecal α-adrenergic receptor agonist[3]. At small dose of intrathecal DEX and clonidine these side effects are not significant whereas at high dose of intrathecal DEX and clonidine produces a significantly longer sensory and motor block but hemodynamic side effects like bradycardia and hypotension are more common. DEX at a dose of 10 µg has been shown to cause more bradycardia and hypotension whereas at low dose (less than 5 µg) it produces less hemodynamic instability but also has lesser sensory and motor blockade[4].

Material and Methods

A prospective randomized single blind study was conducted in the Department of Anesthesia IGMC SHIMLA at Kamla Nehru state hospital.

A total of 90 patients were divided randomly into two groups:

Group C and **Group D**

Group C patient received 3ml (15mg) of bupivacaine heavy with 0.2ml (30µg) clonidine.

Group D patients received 3ml (15mg) of bupivacaine heavy with 0.2ml (5µg) DEX.

Study Period: For period of 1 year [2020-2021]

Inclusion Criteria

1) Patients willing to give consent for study
2) Age between 35-60 years.
3) ASA I and ASA II patients.

Exclusion Criteria

1) Hypersensitivity to the study drugs
2) Patients having any bleeding disorders
3) Patient having decreased platelet counts(≤50, 000/µl)
4) Patients undergone any spine surgery
5) Infection at local site
6) Patients on beta blockers

Results

Table 1: Socio-demographic profile of the patients in the study group

	Group C (Mean±SD)	Group D (Mean±SD)	P value
Age	47.11±7.92	48.20±6.70	0.484
Weight	57.22±3.75	59.48±4.88	0.061
ASA Grade(I:II)	33:12	33:12	0.99

Table 2: Comparison of visual analogue scale between group C and group D

VAS	Group C (Mean±SD)	Group D (Mean±SD)	P value
30 min	1± 0	1± 0	-
60 min	1± 0	1± 0	-
90 min	1.04±0.21	1±0	0.156
120 min	2±0	1.98±0.15	0.320
150 min	2± 0	2± 0	-
180 min	2± 0	2± 0	-
210 min	2.07±0.25	2±0	0.080
240 min	2.13±0.34	2±0	0.011*
270 min	3±0	2.98±0.15	0.320
300 min	3.11±0.32	3±0	0.021
330 min	3.63±0.49	3.02±0.15	0.001*
360 min	3.80±0.41	3.27±0.45	0.001*
390 min	4±0	3.81±0.39	0.425

* Statistically significant ($p<0.05$)

In Group C, Mean VAS score was 1±0 at 30 mins, 60 mins and 90 mins, however it increased to 2±0 at 120 mins, 150 mins, 180 mins and 210 mins. After 240 mins, VAS started increasing more in group C and at 270 mins mean VAS score significantly increased to 3±0 and then to 3.11±0.32, 3.63±0.49, 3.80±0.41 at 330 mins, 360 mins and 390 mins respectively. In Group D, Mean VAS score increased from 1± 0 at baseline and 60 mins to 1.04±0.21, 1.98±0.15 2± 0, 2.07±0.25, 2.13±0.34, 2.98±0.15, 3±0, 3.02±0.15, 3.27±0.45 and 3.81±0.39 3.81±0.39 at 90 mins, 120 mins, 150 mins, 180 mins, 210 mins, 240 mins, 270 mins, 300 mins, 330 mins, 360 mins and 390 mins respectively.

When compared between the groups, mean VAS score was significantly more in Group C at 240 mins, 330 mins and 360 mins($p\leq0.021$)

Discussion

In our study when compared between the groups, the mean VAS score was significantly more in Group C at 240 mins onward when it was 2.13±0.34 in Group C over 2 ±0 in Group D. At 390 min it was 4 in group C and still <4 in group D ($p\leq0.01$)

The result of our study were in accordance to the study by Yektas et al[5] who recorded low NRS score in postoperative period after inguinal surgeries where DEX was used as an adjuvant. In patients where 4 μg DEX was used the score was 1.30±0.57 at 1042 min in the postoperative period as compared to 1.55±0.68 at 370 min in patients who received 2 μg of DEX. They have reported higher time of analgesia than our study as they had included only inguinal surgeries in their study whereas our patients had undergone hysterectomies where the level of incision was higher at T10 level thus the VAS score became high earlier.

Conclusion

When compared between the groups, mean VAS score was significantly more in Group C at 240 mins, 330 mins and 360 mins($p\leq0.021$)

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