

## To Compare the Side Effect of Dexmedetomidine and Clonidine as an Adjuvant to Intrathecal Bupivacaine in Patients Undergoing Total Abdominal Hysterectomy

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### Abstract

**Background:** Addition of adjuvants to routinely used intrathecal drugs is cornerstone in safe and effective prolongation of single shot spinal block for gynecological surgery. In resource deficient countries, where epidural anaesthesia is usually not used because of cost factor, adjuvants are routinely used to prolong the effect of regional anaesthesia. Alpha 2 agonists are considered best drugs as adjuvants, but there is inconclusive data in literature about the block characteristic, dose at which to be used and side effect after use of these drugs.

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

**Results:** Hypotension was seen in 5 patients of Group C and 4 patients of Group D. Three patients in both the groups required 2 doses of Inj mephenteramine and 2 patients in Group C and 1 in Group D required single dose of Vasopressor (Inj mephentermine). ( $p=0.83$ ). Five patients had bradycardia, 3 Nausea and 3 had shivering in Group C, while only 2 patients had side effects in Group D i.e one patient had bradycardia and another nausea, vomiting. ( $p= 0.657$ )

**Conclusion:** We observed hypotension, bradycardia, nausea vomiting and post operative shivering in our patients during the study period but there was no statistical significance achieved amongst the groups. ( $p>0.05$ ).

**Keywords:** Dexmedetomidine, Clonidine, Bupivacaine, Side effect

### Introduction

Hysterectomy is the most frequently performed gynecologic surgical procedure. It has a broad spectrum of indications ranging from benign tumours to malignant gynecological diseases. Hysterectomy is most often indicated when medical treatment or less invasive methods have failed<sup>1</sup>. Abdominal hysterectomy is often a long duration procedure and warrants intense pain relief in the peri and post-operative period.

Management of postoperative pain increases patient satisfaction, leads to earlier mobilization, shortens hospital stay, and reduces hospital costs.<sup>1</sup> A major goal in the management of postoperative pain is to minimize the dose of medications in view to reduce incidence of side effects while still providing adequate analgesia. This goal is best-accomplished with a multimodal approach.<sup>2-3</sup> Regional and neuraxial technique can

provide superior analgesia compared to systemic drugs. Spinal anesthesia using only local anesthetics is associated with relatively short duration of action and thus early analgesic intervention is needed in the postoperative period. A number of adjuvants such as midazolam, clonidine, dexmedetomidine etc. have been used to prolong the duration of spinal anesthesia. Fentanyl is a potent, short-acting, highly lipophilic, synthetic opioid. It has been commonly used as an adjuvant for postoperative analgesia in neuraxial block.<sup>4</sup>

### 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 ( $\leq 50,000/\mu\text{l}$ )
- 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

Hypotension was seen in 5 patients of Group C and 4 patients of Group D. Three patients in both the groups required 2 doses of Inj mephenteramine and 2 patients in Group C and 1 in Group D required single dose of Vasopressor (Inj mephentermine). ( $p=0.83$ ). Five patients had

bradycardia, 03 Nausea and 03 had shivering in Group C, while only 02 patients had side effects in Group D i.e one patient had bradycardia and another nausea, vomiting. ( $p=0.657$ )

**Table 2: Side effects observed in both the study groups**

Variable		Group C (N%)	Group D (N%)	P value
<b>Hypotension (Vasopressor doses)</b>	No hypotension	40(88.9)	41(91.1)	0.839
	12 mg 2doses	03(6.7)	03(6.7)	
	6 mg 1dose	02(4.4)	01(2.2)	
<b>Side effects</b>	Bradycardia	05(11.1)	01(2.2)	0.657
	Nausea, Vomiting	03(6.7)	01(2.2)	
	Shivering	03(6.7)	0	

## Discussion

In our study there were 5 episodes of bradycardia in group C as compared to DEX in which there was 1 patient having 1 episode of bradycardia ( $p=.657$ )

Srinivasan et al<sup>6</sup> reported bradycardia in 3 patients of DEX group and 1 patient in fentanyl group. They also did not achieve any statistical significance

In a study done by Mustafa et al<sup>7</sup> they studied the effect of 10 µg DEX intrathecally and reported a significant fall in the heart rate with odd ratio of 0.24 {0.02, 2.85 at 95% CI} with 32.73% weightage ( $p\leq 0.0001$ )

Paramasivan et al<sup>8</sup> reported lower rate of post-operative shivering in patients of DEX group in his review of 24 studies ( $p=0.04$ ). We also did not report any incidence of post-operative shivering in our patients receiving DEX and 3 patients receiving clonidine had post-operative shivering.

Similarly, both the groups were having almost similar episodes of hypotension and vasopressor use perioperatively

## Conclusion

We observed hypotension, bradycardia, nausea vomiting and post operative shivering in our patients during the study period but there was no statistical significance achieved amongst the groups ( $p>0.05$ ).

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