



## A COMPARATIVE STUDY OF EPIDURAL ADMINISTRATION OF 0.25%B PIVAC INE VERSUS 0.25% BUPIVACAINE +8MG DEXAM ETHASONE ON POST OPERATIVE ANALGESIA FOLLOWING GYNAECOLGY SURGERY”

### Anesthesiology

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### ABSTRACT

#### Background:

The word pain is derived from the Greek term poine (“Penalty”). Pain is not just a sensory modality but it is an experience. The international association for the study of pain defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”.

Epidural steroids have been used successfully for long time for chronic painsyndrome. The safety of epidural steroids is well established. Based on the above evidences and concepts in this study we used dexamethasone epidurally to study the effects on acute postoperative pain.

### KEYWORDS

Epidural Administration, Post Operative Analgesia

#### INTRODUCTION:

The word pain is derived from the Greek term poine (“Penalty”). Pain is not just a sensory modality but it is an experience. The international association for the study of pain defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”. The father of the field of pain management as we know it today was John.J.Bonica and he founded the international association for study of pain in 1974. other than psychological trauma, pain is shown to affect the physiology of almost all the system including respiratory, cardiovascular and metabolic profile thereby increasing morbidity.<sup>2</sup>

Anaesthesia can be categorised local, conscious sedation, regional and general anaesthesia (GA). Regional anaesthesia further separated into neuraxialblock and peripheral nerve block. The type of anaesthesia a patient receives depends on the procedure being performed and his/her physical and emotional status, as well as medical and psychological health.

Intrathecal anaesthesia and epidural anaesthesia (EA) are the most popular regional anaesthesia techniques used for lower abdomen surgeries. Intrathecal anaesthesia also called as spinal anaesthesia has few limitations like, short duration of anaesthesia, extension of anaesthesia can be done for prolonged surgeries but chances of life threatening complications are more, shorter duration of postoperative analgesia and troublesome complication of postdural puncture headache (PDPH)<sup>3</sup>.

EA is becoming one of the most useful and versatile procedures in modern anaesthesiology. It is unique in that it can be placed at virtually any level of the spine, allowing more flexibility in its application to clinical practice. It is more versatile than spinal anaesthesia, giving the clinician the opportunity to provide anaesthesia and analgesia, as well as treatment of chronic disease syndromes. It can be used to supplement GA, thereby providing a more hemodynamically stable operative course. It provides better postoperative pain control and rapid recovery from surgery. When combined with spinal anaesthesia in a technique called CSE, or combined spinal epidural, benefits of both techniques can be combined and shortcomings of each avoided. Hence EA is the most preferred anaesthetic technique for lower abdomen surgeries these days.

The advantages of EA being it,

- provides effective surgical anaesthesia and can meet the extended duration of surgical needs.
- provides prolonged postoperative analgesia
- reduces the incidence of hemodynamic changes as a result of sympathetic blockade as it can produce segmental anaesthesia, unlike subarachnoid block anaesthesia.
- the incidence of PDPH is not there as dura is not pierced.

The knowledge of specific opiate receptors in the substantia gelatinosa

of the posterior horn of spinal cord resulted in widespread use of epidural opioids in the treatment of acute and chronic pain (Pert and Snyder 1973). Though morphine has already established its role in epidural administration for pain relief, its side effects like respiratory depression, nausea, vomiting, urinary retention etc., as made physician to search for a better drug for epidural employment.

Epidural steroids have been used successfully for long time for chronic painsyndrome. The safety of epidural steroids is well established. Based on the above evidences and concepts in this study we used dexamethasone epidurally to study the effects on acute postoperative pain.

#### Aim:

To compare the efficacy of epidural bupivacaine with added dexamethasone in postoperative analgesia following gynaecology surgeries.

#### MATERIALS AND METHODS

Conducted the study in Government Villupuram Medical College hospital in 60 adult female patients aged between 25 – 70 years belonging to ASA Physical status I and II undergoing elective gynaecological procedures, epidural anaesthesia after obtaining written informed consent.

#### STUDY DESIGN:

Double blinded randomized prospective study.

Patients were randomly allocated into one of the two groups (30 patients per group) by lotting method.

#### METHOD OF BLINDING:

Patients and the person performing the epidural technique was unaware of the epidural drug composition. The drug solution was prepared by an anaesthesiologist assistant in the operating room and was labeled accordingly.

#### PATIENT SELECTION:

All the 60 patients were evaluated clinically, biochemically and assessed for elective gynaecological procedures under epidural anaesthesia considering the inclusion and exclusion criteria. Then the patients were randomised into two groups.

#### OBSERVATION PERIOD:

For 24 hours postoperatively.

#### PATIENT GROUPS:

60 patients enrolled in the study were randomly allocated into two groups.

Group BS: Patients receiving 10 cc of 0.25 % bupivacaine plus normal saline 2 cc epidurally.

Group BD: Patients receiving 10 cc of 0.25 % bupivacaine plus 8 mg preservative free dexamethasone epidurally.

All patients received a total volume of 15 ml of study drug including 3 ml of test dose plus 1 ml of adjuvant. The level of blockade was then noted.

## OBSERVATION AND RESULTS

### STATISTICAL TOOLS

The information gathered from the selected cases were noted in the master chart. The collected data were analysed with IBM.SPSS statistics software 23.0 Version. To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. To find the significant difference between the bivariate samples in Independent groups the Unpaired sample t-test was used for normal data and Mann-Whitney U test for skewed data. To find the significance in categorical data Chi-Square test was used. In all the above statistical tools the probability value .05 is considered as significant level.

**Table 1: Duration of surgery**

| GROUPS              |          | N  | Mean   | Std. Deviation | p value |
|---------------------|----------|----|--------|----------------|---------|
| DURATION OF SURGERY | Group BD | 30 | 125.53 | 14.450         | 0.725   |
|                     | Group BS | 30 | 124.30 | 12.477         |         |

The mean duration of surgery in Group BD and BS were 125.53 minutes and 124.30 minutes respectively. p value is 0.725 which is not statistically significant and hence they are comparable with each other.

**Table 2: Time for First Analgesic request**

| GROUPS                           |          | N     | Mean | Std. Deviation |
|----------------------------------|----------|-------|------|----------------|
| TIME FOR FIRST ANALGESIC REQUEST | Group BD | 30    | 3.53 | 1.484          |
|                                  | Group BS | 30    | 2.27 | .944           |
| p value                          |          | 0.000 |      |                |

On comparing the time for first analgesic request postoperatively between two groups, the patients in Group BS requested first analgesic dose earlier than the patients from group BD.

**Table 3: Duration of Analgesia**

| GROUPS                |          | N  | Mean   | Std. Deviation | P Value |
|-----------------------|----------|----|--------|----------------|---------|
| Duration of Analgesia | Group BD | 30 | 351.93 | 92.018         | 0.000   |
|                       | Group BS | 30 | 260.50 | 58.728         |         |

On comparing the mean duration of analgesia among the two groups, patients in Group BD receiving dexamethasone (351.93 mins) had a prolonged duration of analgesia than group BS (260.50 mins). The p value is statistically significant (0.000).

**Table 4: Incidence of Hypotension**

|             |       |                 | GROUPS |        | Total |
|-------------|-------|-----------------|--------|--------|-------|
|             |       |                 | BD     | BS     |       |
| HYPOTENSION | NIL   | Count           | 28     | 30     | 58    |
|             |       | % within GROUPS | 93.3%  | 100.0% | 96.7% |
|             | YES   | Count           | 2      | 0      | 2     |
|             |       | % within GROUPS | 6.7%   | 0.0%   | 3.3%  |
| p value     | 0.150 |                 |        |        |       |

**Table 5: Incidence of Pruritus**

|          |     |                 | GROUPS |        | Total  |
|----------|-----|-----------------|--------|--------|--------|
|          |     |                 | BD     | BS     |        |
| PRURITUS | NIL | Count           | 30     | 30     | 30     |
|          |     | % within GROUPS | 100.0% | 100%   | 100%   |
|          | YES | Count           | 0      | 0      | 0      |
|          |     | % within GROUPS | 0.0%   | 0.0%   | 0.0%   |
| Total    |     | Count           | 30     | 30     | 60     |
|          |     | % within GROUPS | 100.0% | 100.0% | 100.0% |

There is nil incidence of pruritus in both the Groups.

**Table 6: Incidence of nausea**

|          |     |                 | GROUPS |        | Total  |
|----------|-----|-----------------|--------|--------|--------|
|          |     |                 | BD     | BS     |        |
| PRURITUS | NIL | Count           | 30     | 30     | 30     |
|          |     | % within GROUPS | 100.0% | 100%   | 100%   |
|          | YES | Count           | 0      | 0      | 0      |
|          |     | % within GROUPS | 0.0%   | 0.0%   | 0.0%   |
| Total    |     | Count           | 30     | 30     | 60     |
|          |     | % within GROUPS | 100.0% | 100.0% | 100.0% |

No patients had complaints of nausea in both the groups.

**SUMMARY**

After getting ethical committee approval the study was conducted in 60 patients undergoing gynaecological procedures belonging to ASA physical status 1 & 2. The 60 patients enrolled in the study were divided into two groups.

The data were statistically analysed, compared and discussed. The results obtained are summarised below:

- 1) The demographic data like age, weight and height were comparable to each other in both the groups.
- 2) Time for first analgesic request was significantly earlier in group BS patients receiving normal saline (2.27 hrs) and it was delayed in dexamethasone receiving group (3.53) hrs
- 3) The duration of analgesia was significantly prolonged in group in BD patients receiving dexamethasone (351.53) when compared to group BS patients receiving normal saline (260.50)
- 4) Regarding side effects two patients receiving dexamethasone had hypotension. This was treated with fluid bolus and single dose of injection ephedrine 6mg iv and hypotension wasn't found in patients receiving normal saline.
- 5) There is nil incidence of nausea and pruritus in both the groups.

**CONCLUSION**

We conclude that epidural administration of dexamethasone – bupivacaine admixture resulted in better postoperative analgesia in terms of lower postoperative pain score, prolonged postoperative analgesia and patient comfort with fewer side effects when compared with the other two groups.

We also conclude that this resulted in prolonged postoperative analgesia without any side effects like nausea, pruritus except hypotension in few patients.

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