



International Journal of Medical Anesthesiology

E-ISSN: 2664-3774
P-ISSN: 2664-3766
www.anesthesiologypaper.com
IJMA 2020; 3(1): 291-293
Received: 05-11-2019
Accepted: 04-12-2019

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A Comparative study between epidural and combined spinal epidural analgesia on labour

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DOI: <https://doi.org/10.33545/26643766.2020.v3.i1.d.102>

Abstract

Labour is the ending of a pregnancy by one or more babies leaving a woman's uterus by vaginal passage or Caesarean section. In 2015, there were about 135 million births globally. About 15 million were born before 37 weeks of gestation, while between 3 and 12% were born after 42 weeks. Objectives of the study is to compare the impact of lumbar epidural and combined spinal epidural analgesia technique on Labour. A comparative two group study with 20 patients in Combined Spinal epidural analgesia and 20 patients in Epidural analgesia is undertaken to study and to assess the efficacy of 0.125% bupivacaine with 20 micrograms fentanyl in relieving parturition pain and to compare the effectiveness of both techniques on the progress of labour. The mean duration of 1st stage in combined spinal and epidural analgesia group was 5.30 hours and that in epidural group was 5.9 hours. The mean duration of 2nd stage in CSE group was 18.9 min and that in epidural group was 16.9min. Mean duration were not statistically significant for 1st and 2nd stages in the two groups. Duration of third stage was 5.2 min and 6.2 min in combined spinal and epidural analgesia group and epidural group respectively and this was statistically significant.

Keywords: Epidural, Combined Spinal Epidural Analgesia, Labour

Introduction

Labour is the ending of a pregnancy by one or more babies leaving a woman's uterus by vaginal passage or Caesarean section. In 2015, there were about 135 million births globally. About 15 million were born before 37 weeks of gestation, while between 3 and 12% were born after 42 weeks. In the developed world most deliveries occur in hospital, while in the developing world most births take place at home with the support of a traditional birth attendant. The most common way of childbirth is a vaginal delivery. It involves three stages of labour: the shortening and opening of the cervix, descent and birth of the baby, and the delivery of the placenta. The first stage typically lasts twelve to nineteen hours, the second stage twenty minutes to two hours, and the third stage five to thirty minutes. The first stage begins with crampy abdominal or back pains that last around half a minute and occur every ten to thirty minutes. The crampy pains become stronger and closer together over time. During the second stage pushing with contractions may occur. In the third stage delayed clamping of the umbilical cord is generally recommended. A number of methods can help with pain such as relaxation techniques, opioids, and spinal blocks^[1].

Epidural analgesia is the most popular method of pain relief during labour. Women request an epidural by name more than any other method of pain relief. More than 50% of women giving birth at hospitals use epidural analgesia. As you prepare yourself for "labour day," try to learn as much as possible about pain relief options so that you will be better prepared to make decisions during the labour and birth process. Understanding the different types of epidurals, how they are administered, and their benefits and risks will help you in your decision-making during the course of labour and delivery^[2].

Combined spinal-epidural analgesia has become an increasingly popular alternative to the traditional epidural. The local anaesthetic-opioid combination administered intrathecally provides rapid-onset, potent and reliable analgesia, with minimal motor blockade during the first stage of labour, enabling maternal mobility, and resulting in greater maternal satisfaction. A recent study comparing the combined spinal and epidural analgesia technique to traditional epidural analgesia showed that, although both techniques were excellent analgesic options, combined spinal and epidural analgesia provided significantly faster and better pain relief during the first stage of labour^[3, 4].

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Objective

To compare the impact of lumbar epidural and combined spinal epidural analgesia technique on Labour.

Methodology

This comparative clinical study between epidural and combined spinal epidural analgesia on labour with 0.125% bupivacaine and 20mcg fentanyl was conducted on 40 parturient in a tertiary care centre, Bangalore, during the period from January 2018 to December 2018.

Results

Table 1: Age wise distribution of Cases

Age in Years	Combined Spinal & Epidural	Only Epidural
20-25 years	10	10
25-30 years	10	10
Total	20	20

A comparative two group study with 20 patients in Combined Spinal epidural analgesia and 20 patients in Epidural analgesia is undertaken to study and to assess the efficacy of 0.125% bupivacaine with 20 micrograms fentanyl in relieving parturition pain and to compare the effectiveness of both techniques on the progress of labour.

Table 2: Distribution of Duration of Labour in two groups of Cases

Mean Duration	Combined Spinal & Epidural (20 Cases)	Only Epidural (20 Cases)
Stage 1(hrs)		
< 5	8	7
5 – 10	11	10
>10	1	3
Stage 2(min)		
< 5	6	6
5 – 10	12	11
>10	2	3
Stage 3(min)		
< 5	10	11
5 – 10	5	5
>10	5	4

Table 3: Comparison of duration of Labour in two groups of Cases

Duration	Combined Spinal& Epidural (20 Cases)	Only Epidural (20 Cases)
Stage 1 (hours)	5.30	5.90
Stage 2(minute)	18.9	16.9
Stage 3(minute)	5.2	6.2

The mean duration of 1st stage in CSE group was 5.30 hours and that in epidural group was 5.9 hours. The mean duration of 2nd stage in combined spinal and epidural analgesia group was 18.9 min and that in epidural group was 16.9min. Mean duration were not statistically significant for 1st and 2nd stages in the two groups. Duration of third stage was 5.2 min and 6.2 min in combined spinal and epidural analgesia group and epidural group respectively and this was statistically significant.

Discussion

A comparative two group study with 20 patients in Combined Spinal epidural analgesia and 20 patients in

Epidural analgesia is undertaken to study and to assess the efficacy of 0.125% bupivacaine with 20 micrograms fentanyl in relieving parturition pain and to compare the effectiveness of both techniques on the progress of labour. The mean duration of 1st stage in combined spinal and epidural analgesia group was 5.30 hours and that in epidural group was 5.9 hours. The mean duration of 2nd stage in CSE group was 18.9 min and that in epidural group was 16.9min. Mean duration were not statistically significant for 1st and 2nd stages in the two groups. Duration of third stage was 5.2 min and 6.2 min in combined spinal and epidural analgesia group and epidural group respectively and this was statistically significant.

A study by Suneet Kaur proved that the duration of 1st stage of labour was not prolonged in parturient who received combined spinal and epidural analgesia. The slight increase in the mean duration of the active phase labour in the combined spinal and epidural analgesia group did not reach statistical significance [5].

According to a study by Sen *et al.* proved that combined spinal and epidural analgesia was associated with an increased cervical dilatation rate in nulliparous patients. They postulated that the spinal analgesia of a combined spinal and epidural analgesia technique allowed, at least initially and potentially during the course of labour, for a reduction in local anaesthetic dosage when compared with conventional epidural analgesia. Another postulate was that painful labour resulted in an increase in maternal adrenaline level, which may be tocolytic in itself. There is evidence to demonstrate that epidural analgesia may accelerate labour as the provision of effective analgesia reduces maternal catecholamines, and hence minimizing its inhibitory effect on uterine contractility. The use of combined spinal and epidural analgesia with its rapid onset and similar analgesic efficacy would thus be expected to have a similar effect on the duration of labour [6, 7].

As per a study, the mean duration of the 1st and 2nd stage of labour was not significantly different between these groups. Instrumental delivery rates between the groups were not significantly different. The slightly higher incidence of caesarean section in the combined spinal and epidural analgesia group was not statistically significant. Neonatal outcome in terms of Apgar score of less than 7 at 1 and 5min was similar in both groups [8].

According to a study by Michael, they proved that the epidural analgesia given before active stage of labour more than doubled the probability of undergoing caesarean section. If given in the active phase of labour, epidural analgesia does not increase the rates of caesarean section [9]. According to a study by Wong CA *et al.* they concluded that neuraxial analgesia in early labour did not increase the rate of caesarean delivery and it provided better analgesia and resulted in shortened duration of labour than systemic analgesia [10].

According to a study by Ohel G *et al.* they proved that initiation of epidural analgesia in early labour following the first request for epidural, did not result in increased caesarean deliveries, instrumental vaginal deliveries and other adverse effects and it was associated with shortened first stage of labour and was clearly preferred by women [11].

Conclusion

According to the present study, we concluded that there were no significant differences in the duration of labour,

rate of instrumental vaginal delivery and emergency caesarean section, and neonatal outcome in parturient who received compared to those who did not receive combined spinal and epidural for labour analgesia.

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