

# Pain relief and Progress of labour a randomized control comparison of epidural with intramuscular pentazocine for analgesia during labour

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## ABSTRACT

**Objective;** To Compare the effects of epidural analgesia and Parental Pentazocine in labouring women with term pregnancies on maternal outcome. **Design;** It is Randomized controlled trial. **Setting and Duration of Study;** This study was conducted in Department of Obstetrics & Gynecology, Aziz Fatimah Trust Hospital and Medical and Dental College Faisalabad, within duration of 6 months w.e.f May 2014 - Oct 2014. **Methodology;** The effect of epidural and parenteral analgesia on maternal outcome were recorded on predesigned performa in 140 laboring women. **Main outcome measures:** Maternal outcome was recorded in terms of Pain relief and Progress of labour. **Results:** In this study a total of 140 patients were recruited and were divided into two groups of 70 patients each. Group A was given epidural analgesia and Group B was

given Pentazocine. The epidural pentazocine has significant (P-value < 0.05) effect on pain relief at 30 minutes. The mean pain relief in epidural group was 83.45±8.92% as compared to intramuscular group in which it was 55.43±14.22%. Similarly the pain relief noted after 60 minutes was significantly better (P-value < 0.05) in epidural group (96.67±4.92 vs. 68.78±12.46%, as compared with intramuscular group. Moreover there was no significant (P-value > 0.05) difference in the first and second stage of labour in epidural and intramuscular groups. **Conclusions:** We demonstrated that Epidural analgesia provides superior analgesia in view of better pain relief without compromising progress of labour, when compared with Parenteral opioids. **Key words;** epidural analgesia, labour pains, Pain relief in labour.

## INTRODUCTION

Labour although varies with the individual may be the most painful experience, any women may ever encounter. Analgesia and coping with labor pain can prevent suffering during childbirth. Strong evidence is available for the efficacy of Nonpharmacologic methods like continuous one-to-one Support and education from a woman trained to provide nonmedical care during labor<sup>1,2</sup> Sterile water injections<sup>3</sup> and Transcutaneous nerve stimulation, Acupuncture<sup>4,5</sup> Immersion in water

and Audio analgesia<sup>6,7</sup> Birth ball exercise<sup>8</sup> and hypnosis<sup>9,10</sup> has no adverse effects on the normal physiology and progress of labor; could be an alternative means of relieving back pain and labour pain in the labour ward, and does not require intensive monitoring or co-interventions. Pain management strategies include pharmacological interventions that aim to relieve the pain of labour.<sup>11</sup> Parenteral opioids provide mild-to-moderate labor pain relief, but cause side effects. The demand for inexpensive, simple, safe but effective labor pain management for women will undoubtedly increase its place. Although observational studies have found associations between maternal use of opioids and neonatal complications, little higher level evidence is available except that pentazocine which provides

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better analgesia and satisfaction than other opioids.<sup>12</sup>

Neuraxial analgesia is widely accepted and most preferred, and the least depressant method of providing pain relief in labor.<sup>13,14</sup> The technique would confer complete pain relief without interfering with the progress or course of labor.<sup>15</sup> Modern neuraxial labour analgesia reflects a shift in obstetrical anesthesia thinking - away from a simple focus on pain relief towards a focus on the overall quality of analgesia<sup>16</sup> to give better obstetric care and control of labor pain.

## MATERIALS AND METHODS

This collaborative study was undertaken at the Labour room Department Of Obstetrics and Gynecology, and Anesthesiology at Department of Obstetrics & Gynecology, Aziz Fatimah Trust Hospital and Medical and Dental College Faisalabad.

Pregnant women were randomly assigned epidural analgesia or parenteral opioid during labour were enrolled in the study. The inclusion criteria were patients who had gestational age of greater than 37 weeks (confirmed by ultrasound) without any risk factors, in established labour (cervical dilation >3 cm with regular uterine contraction) and with head presentation. Women with any any sepsis, clotting abnormalities and hypovolemia were excluded from the study.

Participants broadly described quality neuraxial labour analgesia or parenteral analgesia for pain relief. Two groups of 70 patients each was made based on lottery method. One group will be labeled as group A and the other will be labeled as group B. Group A was given epidural analgesia by anesthetist at cervical dilatation of 3-4cm. 500ml of colloid solution was infused before activation with Bupivacaine 0.25%-0.5% in a dose of 20-75 mg (8-15 ml) as first dose. Top up doses were given by obstetrician with interval of 60-120 minutes in a dose of 15-50 mg (6-10 ml). (Maximum of two doses after activation). Group B was given Pentazocine in a dose of 30-60mg as intramuscular injection, every 2-3 hours (maximum of two doses after first dose), and was avoided with a window of 1-3 hours before delivery.

Pain scores were assessed at baseline and two hours later. Secondary outcome measures compared were progress of labor based on progress of first stage and second stage of labour. Responses affirmed the importance of traditionally measured outcomes as attributes of quality neuraxial labour analgesia, e.g., pain relief as well as the overall importance of pain control during labour and delivery. The findings further suggest an important relationship between each of these analgesia and progress of labour as first and second stage of labour .

## RESULTS

In this study a total of 140 patients were selected, which were divided into two groups of 70 patients each. In Epidural Pentazocine group (Group A) the mean age was  $25.88 \pm 3.505$  years with a minimum age of 20 years and a maximum age of 32 years and the mean age in Intramuscular Parenteral Pentazocine group (group B) was  $26.01 \pm 3.483$  years with minimum age of 20 and maximum age of 32 years.

There were 45 (64.28%) patients in group A and 41 (58.57%) patients in group B had zero parity. Similarly in group A, 15 (21.42%) and 10 (14.28%) patients and in group B, 22 (31.42%) and 7 (10.0%) patients presented with parity of 1 and 2. The mean gestational age in Epidural group was  $38.72 \pm 1.359$  weeks with minimum gestational age of 37 weeks and maximum gestational age of 41 weeks and in intramuscular group the mean gestational age was  $38.71 \pm 1.339$  weeks with range of 37 to 41 weeks.

The epidural pentazocine has significant (P-value < 0.05) effect on pain relief at 30 minutes. The mean pain relief in epidural group was  $83.45 \pm 8.92\%$  as compared to intramuscular group in which the mean pain relief was noted to be  $55.43 \pm 14.22\%$ . Similarly the pain relief noted after 60 minutes was highly significantly better (P-value < 0.05) in epidural group ( $96.67 \pm 4.92$  vs.  $68.78 \pm 12.46\%$ , P-value < 0.05) as compared with intramuscular group (table 1).

**Table 1: Comparison of Pain Relief in Epidural and Intramuscular group after 30 and 60 minutes**

Time Interval	Pentazocine given	N	Minimum	Maximum	Mean	Std Deviation	P-Value
At 30 minutes	Epidural	70	70%	90%	83.45%	8.92%	0.000 *
	Intramuscular	70	40%	60%	55.43%	14.22%	
At 60 minutes	Epidural	70	90%	100%	96.67%	4.92%	0.000 *
	Intramuscular	70	50%	75%	68.78%	12.46%	

\* Significantly different at 5% level of significance

**Table 2: Comparison of first and second stage of labour between Epidural and Intramuscular groups**

Stage	Pentazocine given	N	Minimum	Maximum	Mean	Std Deviation	P-Value
First Stage of Labour (Hours)	Epidural	70	7	9.5	8.76	2.24	0.1700 **
	Intramuscular	70	8	10	9.63	4.78	
Second Stage of Labour (Minutes)	Epidural	70	30	85	38.45	18.68	0.1795 **
	Intramuscular	70	40	105	43.44	24.67	

\*\* No Statistically significant difference at 5% level of significance

The results show that first stage of labour was although slightly higher in intramuscular Pentazocine group as compared to epidural group but this difference was not statistically significant (P-value > 0.05). Similarly there was no significant (P-value > 0.05) difference in second stage of labour in epidural and intramuscular groups as given in table 2.

## DISCUSSION

The pain of childbirth is arguably the most severe pain most women will endure in their lifetimes- and yet many women look back on it as the psychological, social and physiological aspects of

birth. Childbirth may be more exhausting than painful, but for most women the first stage of labour is accompanied by pain severe enough to warrant alleviation by some form of analgesia.<sup>17</sup> Numerous methods are used to relieve labour pain. These include non-pharmacological (e.g. hypnosis, acupuncture) and pharmacological (e.g. epidural, opioids, non-opioids) methods of pain management.<sup>18</sup>

Epidural analgesia offers best effectiveness and safety ratio.<sup>19</sup> Although it increases the rate of instrumental delivery, yet its advantage of pain free labour, better psychological and no significant complication outweighs this

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drawback.<sup>20</sup> Parenteral opioid derivatives are cheap to use, easy to administer, readily available and provide good pain relief, but are associated with longer onset time of analgesia.<sup>21</sup> Among opioid derivatives, Pentazocine is the option, which is effective in analgesia and causes less nausea and vomiting in mothers when used in combination with metoclopramide, and minimal neonatal respiratory depression as compared to other opioid derivatives.

Pain during childbirth is a well-known cause of dissatisfaction amongst women in labor. A similar study was done in 2009 by Fyeface-Ogan S .In this study epidural analgesia compared with parenteral pentazocin on maternal outcome .The results of this study showed that epidural analgesia in labor is becoming widespread due to its benefit in terms of pain relief. Moreover the mean duration of the first and second stages of labor, were significantly shorter in the epidural group when compared with those in the non-epidural group.<sup>22</sup>

The results of our study corresponds with Cynthia A Wong in 2010,who proved that neuraxial labor analgesia is the most complete and effective method of pain relief during childbirth, and the only method that provides complete analgesia without maternal or fetal sedation. And it reduces the incidence of dysfunctional labour.<sup>23</sup>

In 2010 Ullman R, also assessed parental opioid with placebo for pain relief in labour. The results of his study showed that parenteral opioids provide some relief from pain in labour but are associated with adverse effects. More research is needed to determine which analgesic intervention is most effective, and provides greatest satisfaction to women with acceptable adverse events for mothers and their newborns.<sup>24</sup>

Silva M in 2010 in his study “Epidural analgesia for labor: Current techniques” proved the same results that the epidural analgesia is an extremely effective and popular treatment for labor pain, does not impede the progress of labor or depress the newborn. The incidence of side effects is low, and maternal satisfaction is high.<sup>25</sup>

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