

THE EFFECTIVENESS OF TIMED INTERMITTENT EPIDURAL BOLUS VERSUS PATIENT CONTROLLED EPIDURAL ANALGESIA FOR PRIMIPAROUS WOMEN IN A DEVELOPING COUNTRY

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INTRODUCTION

The pain of labour could be severe for most women. PIEB provides more consistent analgesia, potentially due to better anaesthetic spread in the epidural space, reducing the need for additional boluses. In Nigeria, as in some other developing countries, the lack of appropriate technology hinders clinical care. We investigated the effectiveness of timed intermittent epidural boluses (TIEB) as a surrogate for programmed intermittent epidural boluses (PIEB) for maintaining the labour analgesia in primiparous women.

RESULTS

A total of 56 patients completed the study. Timed intermittent epidural bolus and PCEA proved effective for the maintenance of labour analgesia with similar VAS scores ≤ 30 , and need for additional analgesics (3.6% vs 10.7%, $p = 0.611$). PCEA was associated with decreased top ups ($p<0.0001$), decreased mean total volume of LA used ($p<0.001$). There was no hemodynamic instability, prolonged first or second stage of labour nor increased rate of instrumental delivery or caesarean section, no fetal acidosis with adequate maternal satisfaction.

Table 4: Assessment of Labour Pain among Study Parturient

VAS ≤ 3	PCEA Group (n=28) Freq (%)	TIEB (n=28) Freq (%)
Baseline		
Good/Poor	17/4 (81.0/19)	4/9 (30.8/69.2)
5 minutes		
Good/Poor	21/0 (100.0/0)	9/4 (69.2/30.8)
10 minutes		
Good/Poor	21/0 (100.0/0)	11/2 (84.6/15.4)
15 minutes		
Good/Poor	21/0 (100.0/0)	12/1 (92.3/7.7)
20 minutes		
Good/Poor	20/0 (100.0/0)	13/0 (100.0/0)
25 minutes		
Good/Poor	20/0 (100.0/0)	13/0 (100.0/0)
30 minutes		
Good/Poor	17/0 (100.0/0)	13/0 (100.0/0)
60 minutes		
Good/Poor	17/0 (100.0/0)	13/0 (100.0/0)
90 minutes		
Good/Poor	17/0 (100.0/0)	13/0 (100.0/0)
120 minutes		
Good/Poor	16/0 (100.0/0)	12/0 (100.0/0)
150 minutes		
Good/Poor	9/0 (100.0/)	6/0 (100.0/0)
180 minutes		
Good/Poor	3/0 (100.0/0)	3/0 (100.0/0)
210 minutes		
Good/Poor	2/0 (100.0/0)	2/0 (100.0/0)
240 minutes		
Good/Poor	2/0 (100.0/0)	2/0 (100.0/0)

Table 5: Top-Up and Rescue Analgesics administered to Study Parturients

Characteristic	PCEA Group (n=28) Freq. (%)	TIEB Group (n=28) Freq. (%)	p-value
Number of top-ups given till delivery			
One	3 (10.7)	0 (0.0)	<0.0001
Two	11 (39.3)	2 (7.4)	
Three	11 (39.3)	0 (0.0)	
Four	3 (10.7)	6 (22.2)	
Five and above	0 (0.0)	20 (71.4)	<0.001
Total volume of local anaesthetic consumed	Mean $\pm$ SD 27.50 (2.74)	Mean $\pm$ SD 42.78 (8.78)	
Rescue analgesic			
Yes	1 (3.6)	3 (10.7)	0.611
No	27 (96.4)	25 (89.3)	

METHODOLOGY

Following Institutional Review Board ethical approval, ADM/E 22/A/VOL.VII/1483011863, eligible consenting primiparous women were recruited for the maintenance of labour analgesia using the Timed intermittent epidural bolus (TIEB) or Patient Controlled Epidural Analgesia (PCEA). The epidural was instituted at the L3/L4 interspace following aseptic preparations and was initiated with 15mL of 0.0625% bupivacaine plus 2ug/ml of fentanyl. For the maintenance of labour analgesia, the women were randomized to receive 5mL of 0.0625% bupivacaine + fentanyl 2ug/ml for TIEB(n=28) every 30 minute or PCEA (n=28) with a lockout interval of 15 minutess. The pain scores (VAS), total epidural analgesic consumption, duration of analgesia, obstetrics and neonatal outcomes were assessed. A p-value of <0.05 was considered significant.

CONCLUSION

Timed Intermittent Epidural Boluses (TIEB) and Patient Controlled Epidural Analgesia (PCEA) provided effective labour analgesia with all women in both groups maintaining good pain control with minimal side effect profile and high maternal satisfaction. The results shows the usefulness of the TIEB despite the absence of PIEB, especially in developing countries like ours.