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Quality of labor epidural analgesia depending on pain relief methods

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Background

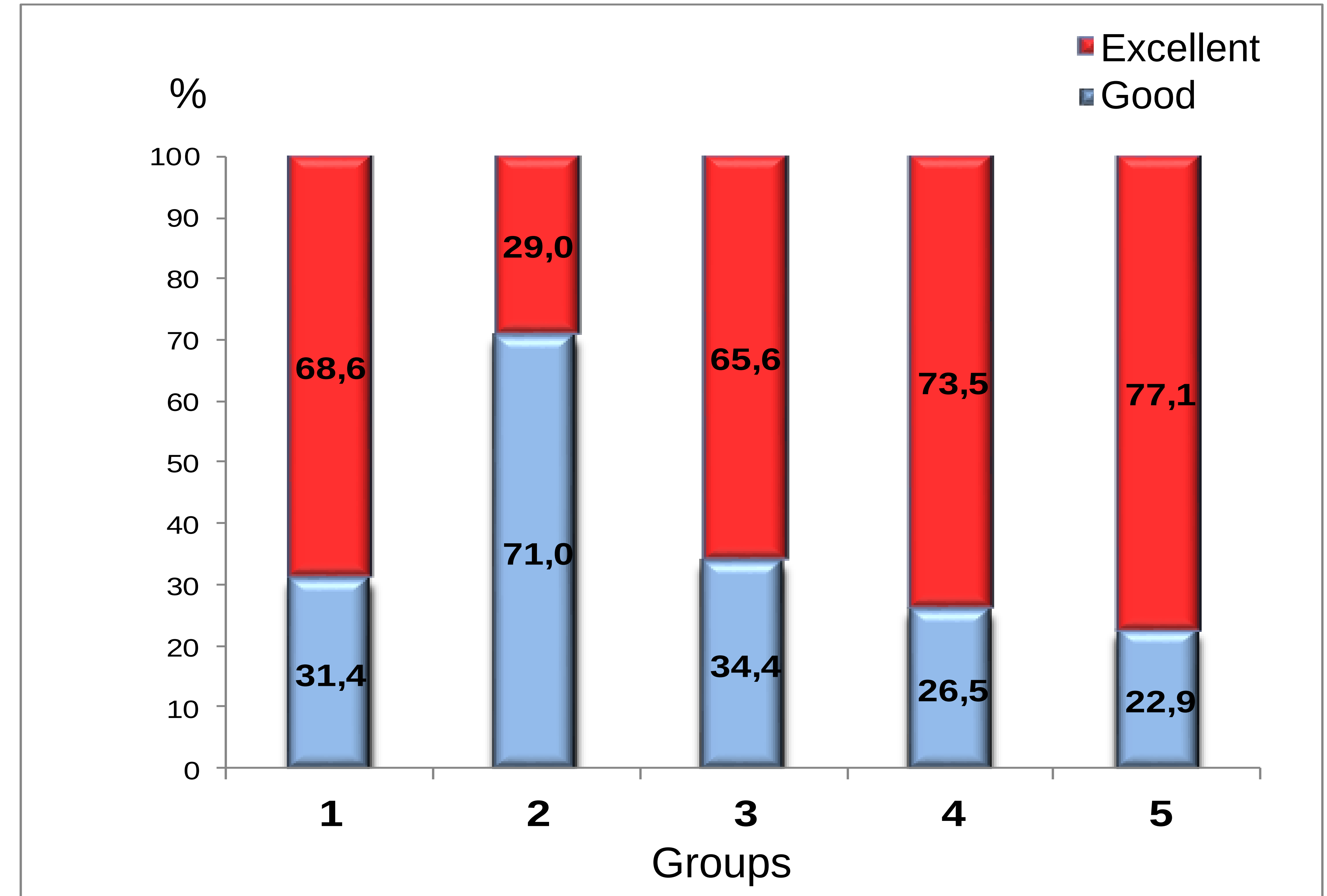
Our labor epidural practice has evolved from a manual bolus to a modern epidural technique such as programmed intermittent epidural bolus (PIEB). We decided to assess the quality of labor epidural analgesia (EA) depending on epidural technique and concentration of local anesthetic.

Methods

- 175 parturients/5 groups
- The postpartum questionnaire
- 1 - Manual bolus
(levobupivacaine 0.25%-10.0 ml)
- 2 - PCEA (levo 0.125% -10.0 ml every 30')
- 3 - CEI (levo 0.125% - 10.0 ml/h) + PCEA (levo 0.125% - 10.0 ml every 30')
- 4 - Loading dose of levo 0.125% - 10.0 ml,
after 15' - CEI (levo 0.0625% - 15 ml/h) + PCEA (levo 0.0625% - 10.0 ml every 20')
- 5 - Loading dose of levo 0.125% - 10.0 ml,
after 15' - PIEB (0.0625% - 9.0 ml every 45') + PCEA (0.0625% - 10.0 ml every 10')

Results

In the study groups, the quality of labor pain relief in each group and comparison between groups were assessed. The mothers' satisfaction rate as "excellent" was 68% in 1st group, 29% in 2nd group, 65,6% in 3rd group and 73,5% in 4th group, $p=0,0004$. In 5th (PIEB+PCEA) group, the mothers' satisfaction rate as "excellent" was more (77,1%) than other groups significantly ($p=0,0004$).



Results

The dynamics of pain intensity among parturients before and during EA between study groups was significant, p<0,0001 (tab.1). As shown in table 1, before EA, in the 2nd group labor pain intensity was only severe (68,8%) and very severe (31,3%), while in the 4th group, almost half of the patients evaluated pain as “moderate” and 80% of patients in tne 5th group as “severe” and below. During EA, the intensity of labor pain didn't exceed "moderate" in parturients of all groups. The highest percentage of "no pain" was in the 1st and the 5th groups.

Table 1. The dynamics of pain intensity before and during epidural analgesia between the study groups

Groups	Pain intensity before EA			χ ² test	Pain intensity during EA in the I and II stage of labor			χ ² test
	moderate (2), %	severe (3), %	very severe (4), %		no pain (0), %	slight (1), %	moderate (2), %	
1	5,7	48,6	45,7	p<0,0001	42,9	25,7	31,4	p<0,0001
2	0,0	68,8	31,3		0,0	28,1	71,9	
3	9,4	56,3	34,4		37,5	56,3	6,3	
4	43,3	36,7	20,0		26,7	53,3	20,0	
5	22,9	60,0	17,1		42,9	45,7	11,4	

* 0 - no pain, 1 - slight pain, 2 - moderate pain, 3 - severe, 4 - very severe

Conclusions

The use of modern epidural technique (PIEB+PCEA) with a low concentration of local anesthetic has resulted in a significant improvement in the quality of labor analgesia. When we choose the technique of epidural analgesia, it is necessary to assess the initial intensity of pain before analgesia in each parturient. For the most effective PIEB technique, it is necessary to start analgesia before the onset of very severe pain (4 points).

Referents

1.Carvalho B, George RB, Cobb B, McKenzie C, Riley ET. Implementation of Programmed Intermittent Epidural Bolus for the Maintenance of Labor Analgesia. Anesth Analg. 2016 Oct;123(4):965-71. doi: 10.1213/ANE.0000000000001407