

Assessment of NT-proBNP during labor depending on pain relief methods

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Background

Negative emotions and mental stress in parturients in labor with severe pain affect the circulatory system, causing microcirculatory complications and reducing peripheral blood flow.

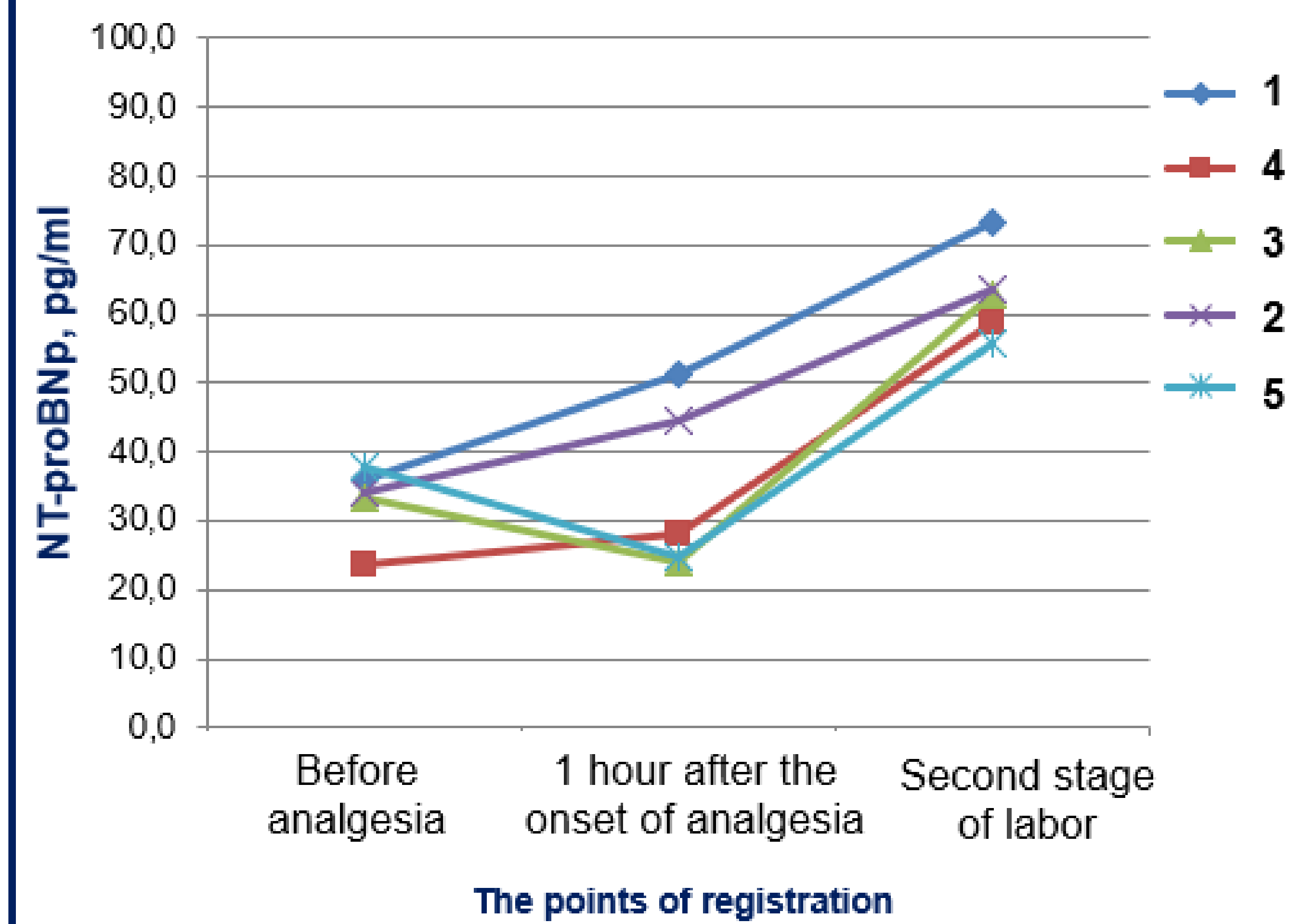
This study aims to evaluate the dynamics of NT-proBNP depending on the technique of epidural analgesia in labor.

Methods

- 90 parturients/5 groups
- 1 - Manual boluses (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')
- **NT-proBNP registration points:**
 - before analgesia
 - 1 hour after the onset of analgesia
 - second stage (full cervical dilation) of labor.

Results of study

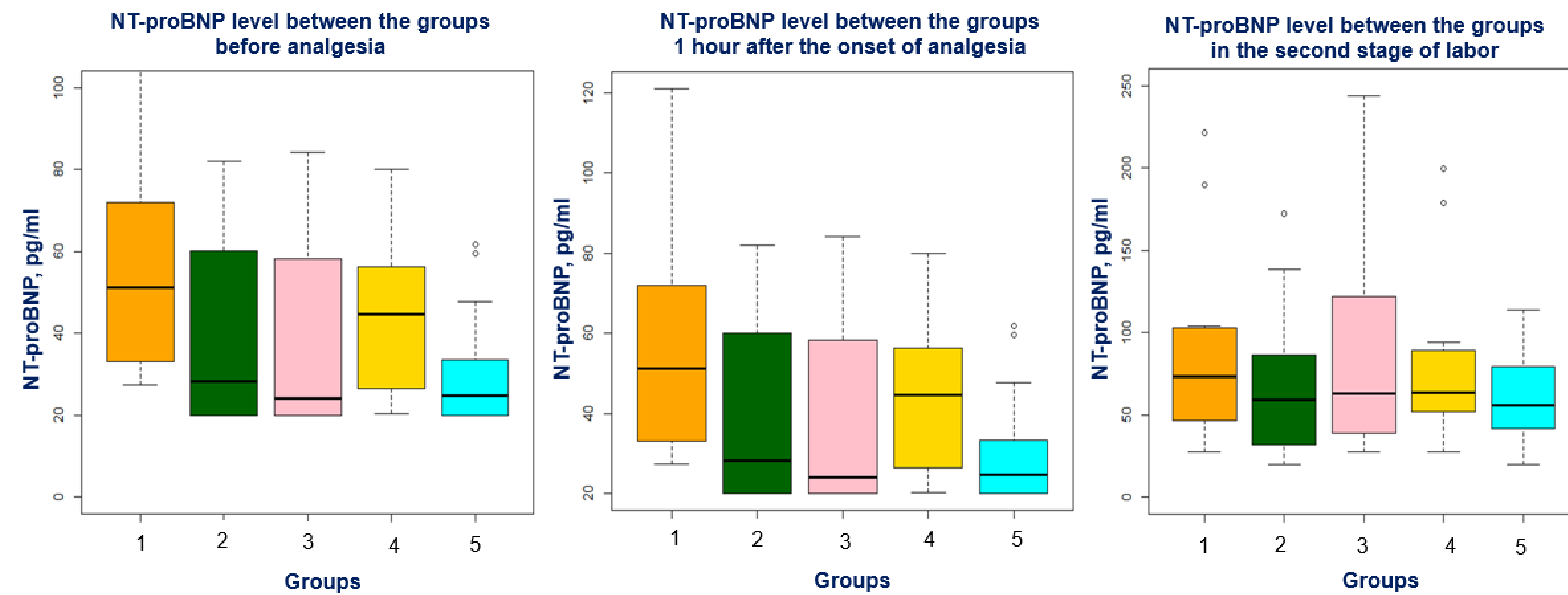
Fig. 1. Dynamics of median NT-proBNP level in study groups



- In the 1st group, the mean NT-proBNP level was increasing significantly during the observation period, $p < 0,0001$ (Fig.1). Similar dynamics of NT-proBNP was observed in the 2nd group, $p < 0,0001$. The NT-proBNP level was also rising over the observation period in the 4th group, however, 1 hour after the onset of analgesia, its level was not as significant as in the 1st and 2nd groups, $p < 0,0001$. The downward trend in the median of NT-proBNP in 3rd и 5th groups was registered 1 hour after the onset of analgesia, also, it had an upward pattern in the second stage, $p < 0,0001$ and $p = 0,0008$ (Fig.1).

Conclusions: The use of combined techniques of labor epidural analgesia with a low concentration of local anesthetic prevents the decompensation of the parturient's hemodynamics as labor progresses to the finish.

Fig. 2. Dynamics of NT-proBNP level variability between groups at the points of registration



, (Median, Q1 - 25%, Q3 - 75%, Min – Max)

- According to the comparative intergroup analysis, the highest initial average level of NT-proBNp was observed in the 1st and 5th groups, whereas the lowest average level was recorded in the 2nd group, $p = 0,728$ (Fig.2). One hour after the onset of analgesia, a fluctuating dynamics of NT-proBNp was registered, $p = 0,018$; in the second stage of labor, the average level of NT-proBNP increased significantly in the 1st, 2nd, and 3rd groups (Fig.2)