

INFLUENCE OF EPIDURAL ANALGESIA ON PREGNANT WOMEN WITH CARDIOVASCULAR DISEASE

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INTRODUCTION

Maternal morbidity and mortality are increasing in the western world because of cardiovascular disease (CVD) [1]. During labor, the blood pressure increases, the activation of sympathetic nerves and increased venous return can cause arrhythmias [2]. Epidural analgesia reduces labor pain and can be beneficial for blood pressure control. Moreover, the frequency of arrhythmias decreases due to sympathetic blockade [3]. Thus, it is very important to evaluate the effect of epidural analgesia on the mother and fetus.

METHODS

A retrospective study of 112 women with CVD that gave birth at the Hospital of Lithuanian University of Health Sciences Kaunas Clinics from 2017 to 2020 was performed. The following data were analyzed: age, gestational age, CVD, hemodynamic parameters (first recorded systolic blood pressure (sBP), the maximal recorded sBP), maternal outcomes (spontaneous vaginal delivery rate, duration of labor, blood loss (<500; 500-1000; >1000 ml), neonatal outcomes (Apgar's score and pH of umbilical cord). Patients were divided into two groups: epidural group (E) and no-epidural group (NE). Statistical analysis was processed using IBM SPSS Statistics 25. Quantitative variables were described as mean with standard deviation (SD) or median and interquartile range (IQR). Differences between the groups were analyzed using χ^2 test of independence, Student's t and Mann Whitney's U tests and considered statistically significant when $p < 0.05$.

CONCLUSIONS

The most common CVD was congenital heart disease. The maximal sBP during labor was lower and the duration of labor was longer in the epidural group. There were no other significant differences between hemodynamic, maternal, or neonatal outcomes.

AIM

To evaluate the effect of epidural analgesia on hemodynamic parameters, maternal and neonatal outcomes of pregnant women with CVD.

RESULTS

112 patients were identified with mean age 28.6 years old (SD=5.5) and median gestational age 39 weeks (IQR=2). The most common CVD was congenital heart disease $n=44$ (39.3%). There were 50 (44.6%) cases in the E group and 62 (55.4%) in the NE group. No cardiovascular events were observed. There was no significant difference in the first recorded sBP between E (Mdn=123.5, IQR=15.25) and NE group (Mdn=123.5, IQR=13); $U=1390.5$, $z=-0.935$, $p=0.35$. The maximal sBP was significantly lower in the E group (M=124.56, SD=12.58) vs NE group (M=129.87, SD=12.22); $t(110) = 2.26$, $p=0.026$. The duration of labor (measured in minutes) was significantly longer in the E group (M=794.7, SD=423.21) versus NE group (M=588.69, SD=288.76); $t(99)=-2.894$, $p=0.005$. Maternal blood loss and spontaneous vaginal birth rate did not differ between groups, $\chi^2(2, 112) = 2.573$, $p=0.276$ and $\chi^2(1,112)=1.033$, $p=0.309$, respectively. Apgar's score at 1 min did not differ between the E (Mdn=9, IQR=1) and NE (Mdn=9, IQR=1) group, $U=1471.5$, $z= - 0.497$, $p=0.619$. The pH was not significantly different in the E (N=19, Mdn=7.29, IQR=0.139) and NE group (N=15, Mdn=7.24, IQR=0.197), $U=123.5$, $z=-0.659$, $p=0.52$.