

# The Influence of Epidural Analgesia on Systolic Blood Pressure, Obstetrical and Neonatal outcomes of Pregnant Women with Valvular Heart Disease

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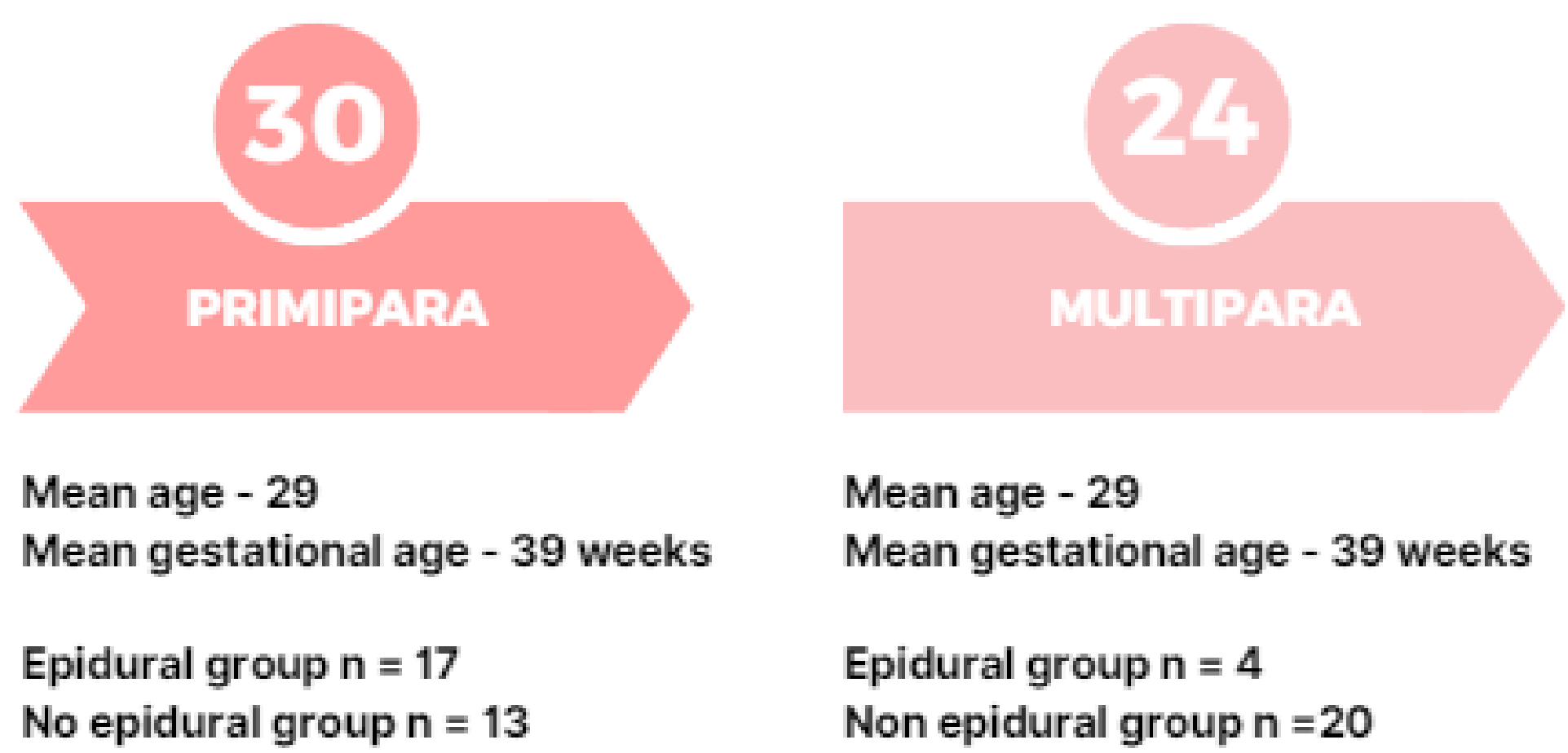
## Introduction

- The frequency of cardiac disease in pregnancy varies from 1% to 4%, and the number is increasing in the western world.
- The incidence of pregnancy, associated with high risk of cardiovascular disease, is increasing in association with delayed childbearing (1).
- Therefore, the use of epidural anesthesia can blunt many of the hemodynamic alterations associated with delivery (2).
- Our objective was to evaluate the effect of epidural analgesia on systolic blood pressure, obstetrical and neonatal outcomes during delivery of women with valvular heart disease.

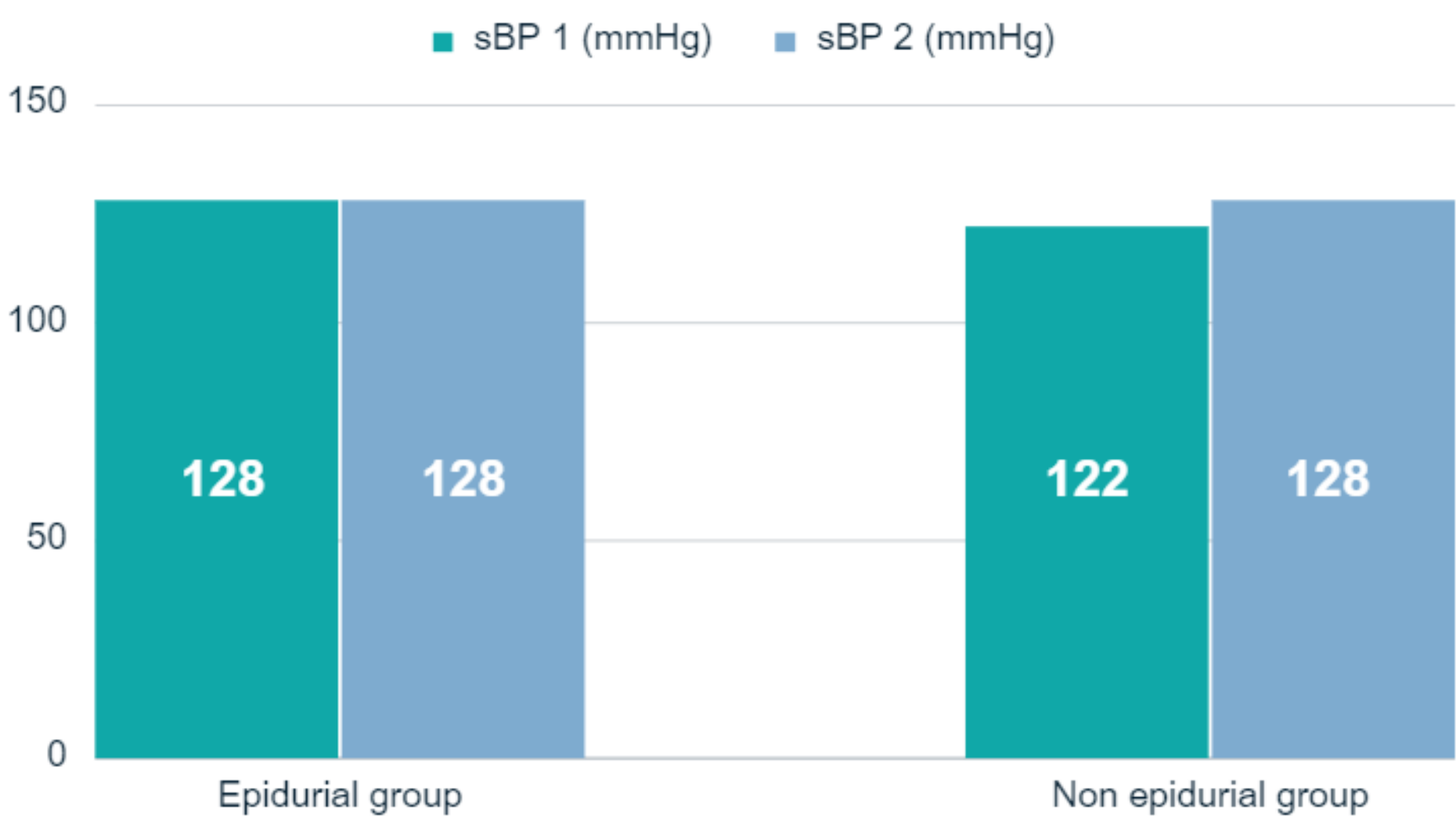
## Materials and Methods

- A retrospective study of 54 women with valvular heart disease (VHD) 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, VHD, first recorded systolic blood pressure (sBP), the maximal recorded sBP, obstetrical outcomes (spontaneous vaginal delivery rate, blood loss), neonatal outcomes (Apgar score and pH of umbilical cord).
- Patients were divided into two groups: epidural group (E) and no-epidural group (NE).
- Quantitative variables were described as mean±standard deviation or median (interquartile range).
- Differences between the groups were analyzed using  $\chi^2$  test of independence, Student's t and Mann Whitney's U tests and considered statistically significant when  $p < 0.05$ .

Characteristics of Groups



Systolic Blood Pressure Comparison



Obstetrical Outcomes

|                    | Epidural Group | No Epidural Group |
|--------------------|----------------|-------------------|
| Type of Delivery   |                |                   |
| Vaginal            | 31,5 %         | 51,9 %            |
| C-section          | 7,4 %          | 9,2 %             |
| Induction of Labor |                |                   |
| Yes                | 7,4 %          | 7,4 %             |
| No                 | 31,5 %         | 53,7%             |
| Blood Loss         |                |                   |
| <500 ml            | 33,33 %        | 51, 85%           |
| 500-1000 ml        | 5,56%          | 9,26%             |
| >1000 ml           | 0 %            | 0 %               |

## Results

- The mean age was 29.02±5.42 years old and gestational age 39 (2) weeks.
- There were 21 (38.9%) cases in the E group and 33 (61.1%) in the NE group.
- There was no significant difference in the first recorded sBP between E and NE group (128 (9) mmHg and 122 (14) mmHg respectively;  $p=0.50$ ).
- The maximal sBP was not statistically significant compared EPI group (128 (23.50) mmHg) vs NoEPI group (128 (11) mmHg),  $p=0.27$ .
- The mean of systolic blood pressure significantly increased from 125.24 mmHg to 127.76 mmHg ( $p < 0.05$ ) in the NoEPI group.
- Maternal blood loss and spontaneous vaginal birth rate did not differ between groups,  $\chi^2=0.008$ ,  $p=0.930$  and  $\chi^2=0.140$ ,  $p=0.708$ , respectively.
- Apgar's score at 1 min did not differ between the E and NE group (9 (1.5) and 9 (1) score respectively,  $p=0.730$ ). Apgar's score at 5 min did not differ between the E and NE group (9 (1.5) and 9 (1) score respectively,  $p=0,730$ ).
- The pH was not significantly different in the E ( $n=8$ ) and NE ( $n=8$ ) group (7.24 (0.14) and 7.21 (0.19) respectively;  $p=0.571$ ).

## Discussion and conclusions

- The mean of systolic blood pressure significantly increased in the NoEPI group, therefore the effective pain control is recommended for patients with cardiovascular disease.
- There were no other significant differences between obstetric or neonatal outcomes.

## References

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2. Nanna M, Stergiopoulos K. Pregnancy complicated by valvular heart disease: An update. J Am Heart Assoc [Internet]. 2014 Jun 5 [cited 2023 Feb 2];3(3).



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