

# Moderate to severe thrombocytopenia in pregnancy does not negatively impact on maternal and neonatal outcomes: a single centre, retrospective study.

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**Introduction**

Thrombocytopenia (TCP), defined as a platelet count  $<150 \times 10^9/L$ , is a common abnormality encountered during pregnancy<sup>1</sup>. Data on moderate to severe cases (platelets  $\leq 100 \times 10^9/L$ ) are limited. This study aims to investigate aetiology and peripartum management in this subgroup.

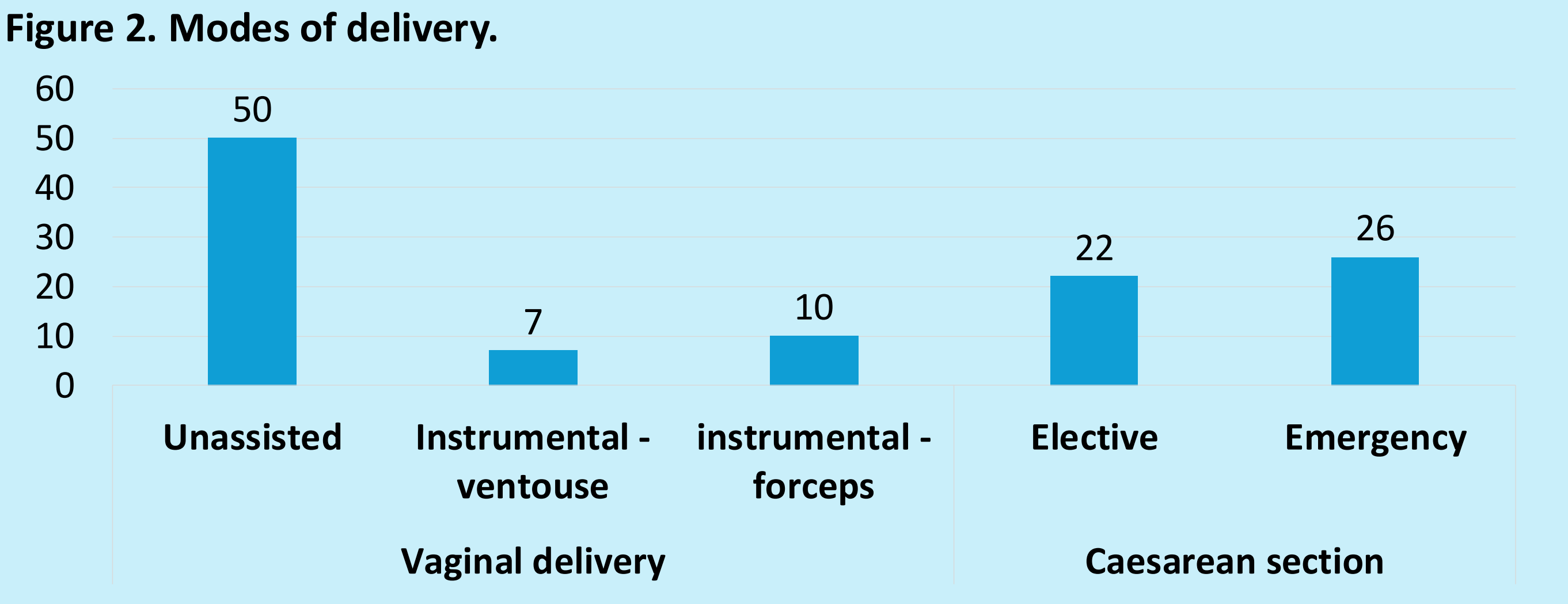
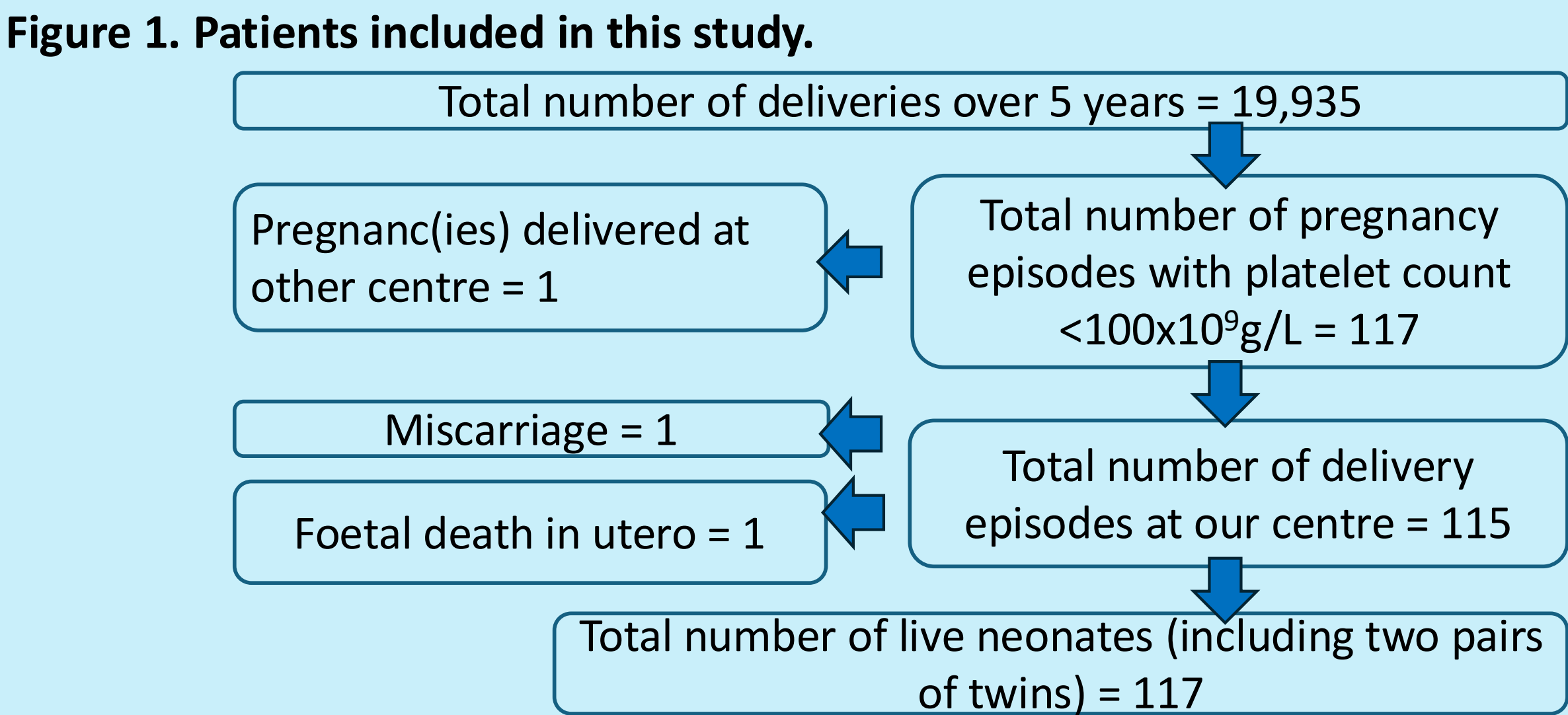
**Methodology**

We performed a single-centre retrospective study at Northern Health in Victoria, Australia. Pregnancies with platelets  $\leq 100 \times 10^9/L$  between January 2019 to December 2024 were included. Relevant clinical and investigations data were collected via electronic medical record. Continuous variables were compared using unpaired two-tailed t-test. Outcome measures were outlined as follows:

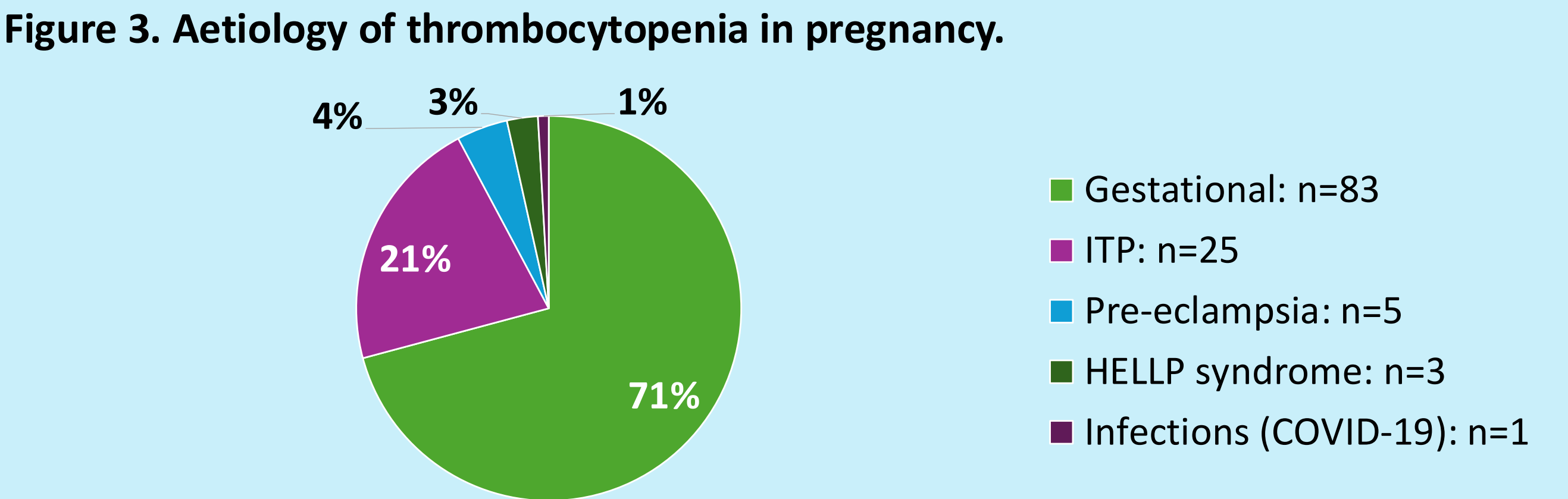
- Causes of thrombocytopenia
- Postpartum haemorrhage (PPH) and blood product usage
- Neonatal platelet count and bleeding in Immune Thrombocytopenia (ITP) cohort
- Peri-partum management: Mode of delivery, Use of neuraxial anaesthesia, and Thrombocytopenia-targeted therapies in ITP cohort

**Results**

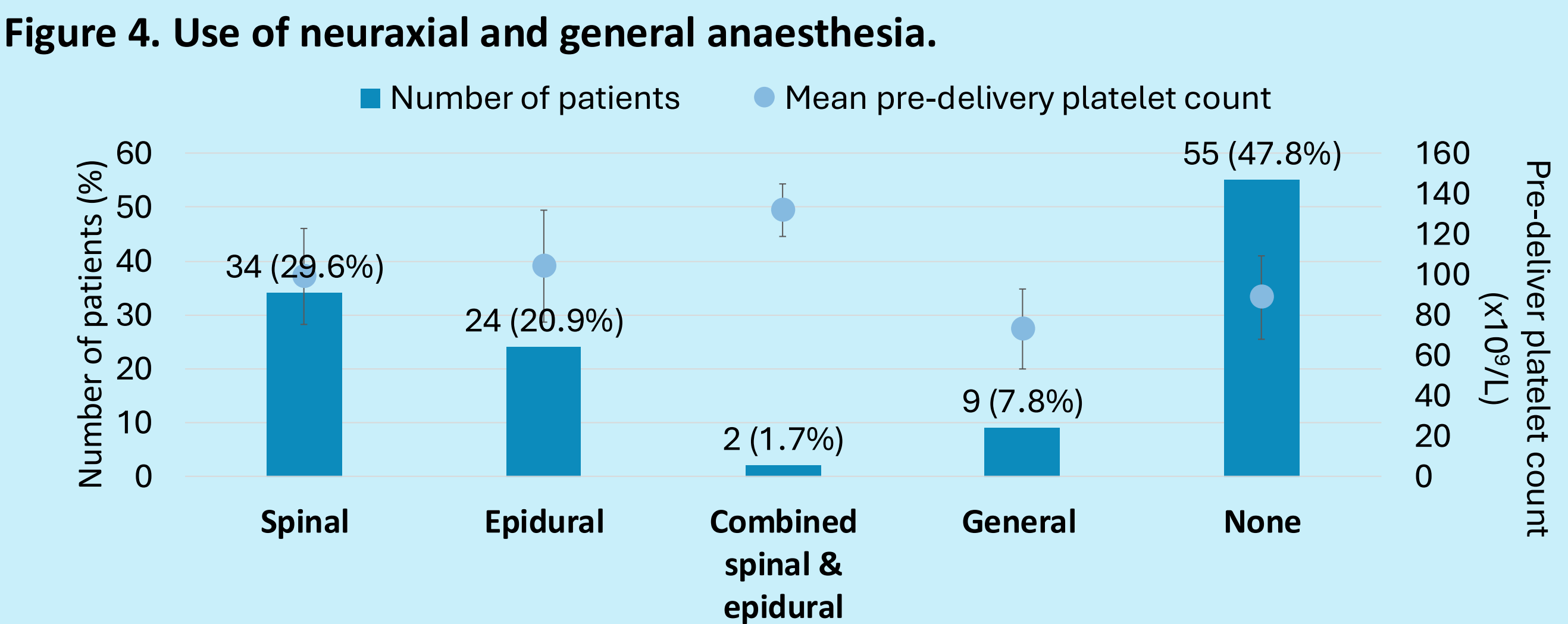
117 pregnancies were included in total (Figures 1&2). Mean maternal age was 30.3 years (20 – 47 years).



The most common aetiology was gestational thrombocytopenia followed by ITP and hypertensive disorders (Figure 3). There were no thrombocytopenia secondary to systemic lupus erythematosus or thrombotic microangiopathy. Mean nadir platelet count at anytime during pregnancy was  $77.1 \pm 18.1 \times 10^9/L$ .



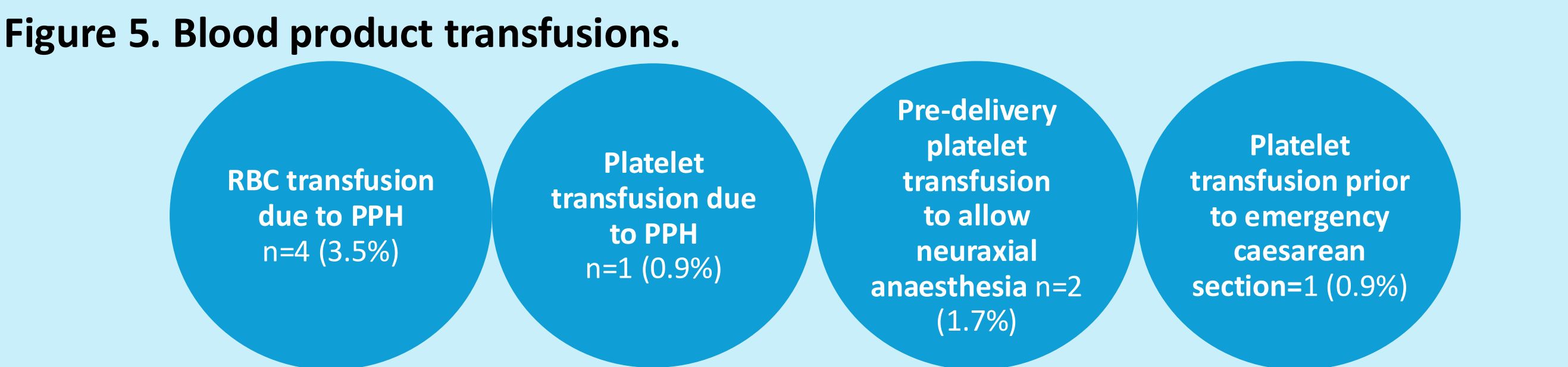
60 (52.2%) pregnancies received neuraxial anaesthesia at delivery (Figure 4). 58 (50.4%) patients had platelet count above  $80 \times 10^9/L$  at delivery, one (0.9%) had platelet count between  $70-79 \times 10^9/L$ , and one (0.9%) had platelet count below  $70 \times 10^9/L$  (at  $69 \times 10^9/L$ ). There were no bleeding complications at anaesthetic site.



Postpartum haemorrhage (PPH) occurred in 40 pregnancies (34.8%). There was no statistical significance difference (defined as p-value  $<0.05$ ) in pre-delivery platelet count between PPH and non-PPH groups (Table 1). Transfusion requirements are outlined in Figure 5.

**Table 1. Postpartum haemorrhage.**

|                                                                        | PPH (n=40)                  | No PPH (n=75)              | P-value |
|------------------------------------------------------------------------|-----------------------------|----------------------------|---------|
| Pre-delivery platelet count ( $\times 10^9/L$ ), mean $\pm$ SD (Range) | 100.4 $\pm$ 26.4 (56 – 214) | 90.7 $\pm$ 22.2 (51 – 162) | 0.054   |



In 25 pregnancies with immune thrombocytopenia purpura (ITP), 16 (65%) received targeted therapies, with eight (32%) achieving target pre-delivery platelet count of  $>70 \times 10^9/L$  (Table 2). Mean pre-treatment nadir platelet count was  $57.0 \pm 20.3 \times 10^9/L$ .

**Table 2. Management of ITP cohort.**

|                                             | n (%)    |
|---------------------------------------------|----------|
| Patients who received treatments            | 16 (64%) |
| Oral prednisolone                           | 16 (64%) |
| Received IV steroids                        | 6 (24%)  |
| Received IVIg                               | 6 (24%)  |
| Platelet transfusions                       | 1 (4%)   |
| Adverse effects from treatment              | 1 (4%)   |
| Post treatment platelet $>70 \times 10^9/L$ | 8 (32%)  |
| Received neuraxial anaesthesia              | 11 (44%) |

Four (16%) out of 22 neonates born to ITP pregnancies had thrombocytopenia (nadir platelet count of  $44 \times 10^9/L$ ) in the first seven days without haemorrhagic complications.

**Discussion**

The prevalence of moderate–severe thrombocytopenia was consistent with the reported rate of  $<1\%$ <sup>1</sup>. No significant association between peripartum platelet count and PPH was identified. Our centre was largely compliant with the recommended  $>70 \times 10^9/L$  threshold for neuraxial anaesthesia<sup>2</sup>. For mothers with ITP, treatment was initiated at higher platelet counts than guideline thresholds<sup>2</sup>, with 50% of treated patients achieving  $>70 \times 10^9/L$  before delivery. Active surveillance for neonatal thrombocytopenia revealed that it did occur in some infants<sup>3</sup>, but no haemorrhagic complications were observed. **Limitations:** Small sample size, single-centre retrospective design, and potential selection and documentation bias.

**Conclusion**

Moderate thrombocytopenia in pregnancy does not negatively impact on risk of maternal PPH and neonatal haemorrhage. Neuraxial anaesthesia can be safely administered without complications. Early treatment of ITP could improve peripartum platelet count with low risk of adverse effects and enables safe use of neuraxial anaesthesia. A larger prospective study would be helpful to enable meaningful statistical analysis.

**References**

- Practice Bulletin No. 166: Thrombocytopenia in Pregnancy. *Obstet Gynecol* 2016;128(3): e43–53.
- Eslick, R., et al., *HOW Collaborative position paper on the management of thrombocytopenia in pregnancy*. Aust N Z J Obstet Gynaecol, 2021. 61(2): p. 195–204.
- Cines, D.B. and L.D. Levine, *Thrombocytopenia in pregnancy*. Hematology Am Soc Hematol Educ Program, 2017. 2017(1): p. 144–151.