102. Diagnostic utility of full blood count screening in neonates born to mothers with moderate - severe thrombocytopenia

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INTRODUCTION

Maternal thrombocytopenia is a common phenomena during pregnancy (7-10% of pregnancies) (Jensen et al. 2011)[1].

The neonatal consequences of this are not completely known.

Causes of maternal thrombocytopenia:

- Pregnancy specific conditions: gestational thrombocytopenia, hypertensive disorders;
- Pregnancy associated conditions: thrombotic thrombocytopenia purpura, DIC, HUS;
- Non-pregnancy associated: ITP, hereditary, marrow disease, viral infections, malignancies, vitamin B12 /folate deficiency, drugs etc.[1]

Current literature :

- Maternal PLT > 75 x 10^9/L - No increased risk to neonates;
- Maternal PLT < 50 x 10^9/L - Increased risk (x5) for neonatal adverse events.[1]

Current practice in The Rotunda Hospital: Screening all babies delivered to thrombocytopenic mothers (<100 x 10^9/L) with sampling of an FBC, regardless of the underlying maternal conditions.

OBJECTIVE

QUESTIONS:

a. Should there be a PLT count performed on the neonate in light of maternal low PLT levels (i so, how low?);

b. Should we rather turn to screen asymptomatic babies for PLT counts depending on the specific maternal thrombocytopenia causing condition?

METHODS

- **Single site, retrospective study**;
- **Maternal and neonatal data records: MN-CMS in The Rotunda Hospital (2018-2022)**;
- **Data recording tools**:

1st: **Maternal information** (eg. hospitalization, GA at first thrombocytopenic episode, suspected diagnosis, PLT count);

2nd: **Neonatal and maternal data** (eg. chart number, GA, BW, lowest maternal recorded PLT count, suspected diagnosis, maternal treatment, FBC performed on neonate?, neonatal thrombocytopenia?, neonatal treatment/interventions/outcomes).

- **Relevant questions**: quantitative/qualitative + close-ended;

3rd: **Mother's MRN** correlated with **Baby's MRN** for accuracy.

Inclusion criteria:

Maternal PLT count<100 x 10^9/L, previous to delivery;

Neonatal PLT count <100 x 10^9/L;

Exclusion criteria:

Maternal PLT count>100 x 10^9/L or <100 x 10^9/L after delivery; Neonatal PLT count > 100 x 10^9/L.

RESULTS

Statistical Analysis:

- Total number of FBCs = 550 samples (sent to laboratory);
- Total neonates thrombocytopenic <100 X 10^9/L = 16 patients;
  - 2 major haemorrhage;
- Number of FBCs to diagnose:
  - 1 Thrombocytopenia of <100 X 10^9/L= 35;
  - 1 Thrombocytopenia requiring treatment = 78;
  - 1 Major Haemorrhage = 275.

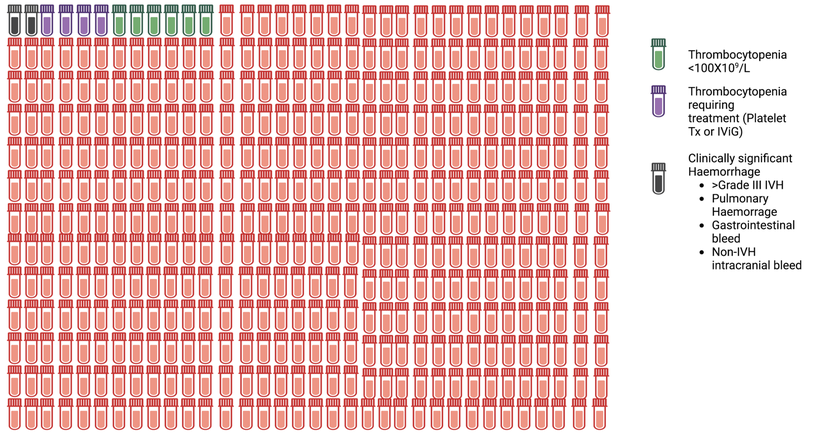
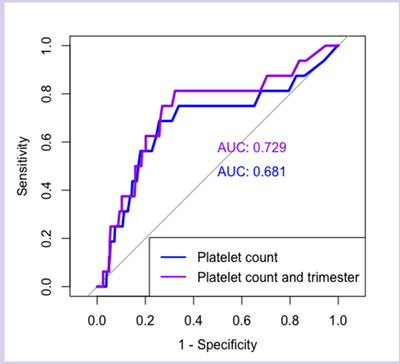


Figure 3: The relative proportion of FBCs to identify thrombocytopenia <100X10^9/L, thrombocytopenia requiring treatment and clinically significant haemorrhage (n=550 FBCs examined, 447 in diagram).



FBC screening for all neonates from mothers with PLT counts <100 X 10^9/L is of low diagnostic yield, in according to the proposed cohort.

CONCLUSION

Limitations:
- Single site;
- Covers time period when cyber attack occurred;
- Further data analysis and modelling required;
- Establish which neonates are likely good candidates for screening;
- Lower threshold?;
- Risk stratification tool goal of research.

DISCUSSIONS

Our results so far show that a maternal PLT count of <100x10^9/L is of low diagnostic yeld for the prediction of neonatal thrombocytopenia.

We aim to:

- Collect similar data from a second site, The National Maternity, Dublin;
- Check-proof data and correlate both sites;
- Further data analysis for whether maternal PLT count of <80x10^9/L is a sensitive/specific test in determining neonatal thrombocytopenia;
- Make appropriate guideline improvements.

REFERENCES

1. Jeff D. Jensen, B.A., Susan E. Wiedmeier, M.D., Erick Henry, M.P.H., Robert M. Silver, M.D., and Robert D. Christensen, M.D. (May 3, 2011). Linking Maternal Platelet Counts with Neonatal Platelet Counts and Outcomes Using the Data Repositories of a Multihospital Health Care System. DOI: http: //dx.doi.org/10.1055/s-0031-1276733.

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