

Identifying the role of mean platelet volume and platelet count at booking visit as a predictor of pre-labour rupture of membrane

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Introduction: Prelabour rupture of membrane (PROM) comprises prelabour rupture of membrane at term (TPROM) or preterm (PPROM). Prelabour rupture of membrane after 37 weeks of gestation is defined as TPROM. Rupture of membrane before 37 weeks of gestation with leakage of amniotic fluid prior to the onset of labour is defined as PPRM. Objective: Purpose of this study is to determine the diagnostic value of Mean Platelet Volume (MPV) and Platelet Count at the booking visit for prediction of preterm PROM and term PROM.

Methods: A descriptive cross-sectional study was conducted among 346 participants. All pregnant women presented to the study setting during the study period were included. Interviewer administered structured questionnaire was used for data collection. Data were analyzed by SPSS 21.0. Receiver operating curve was used for diagnostic test accuracy and 95% confidence interval was applied for statistical significance. Results: Predominantly primigravidae represented the study sample and the mean age was 26.67 years. Mean platelet count was $250 \times 10^9/L$ and mean platelet volume was 8.54fl. Probability of predicting PPRM by the platelet count was 69.2%, and platelet volume was 85.9%. When the platelet count at the booking visit was $248 \times 10^9/L$ or more it helped to predict PPRM with a probability of 80% sensitivity and 57% specificity. When the MPV at the booking visit was 8.15 fl or less it helped to predict PPRM with a probability of 80% sensitivity and 75% specificity. When $237 \times 10^9/L$ or more platelet count was considered as the cut off value it was possible to achieve a 76% sensitivity and 33.7% of specificity for predicting TPROM. When 9.6 fl or less MPV was considered as the cut off value it was possible to achieve a 79% sensitivity and 22 % of specificity to predict TPROM.

Conclusions: There is a possibility of predicting PPRM during the third trimester, by using the platelet count and the mean platelet volume measured during the first trimester. PPRM could be predicted when the platelet count is $248 \times 10^9/L$ or more and the MPV is less than 8.15 fl. It is not possible to use above mentioned parameters, to predict PROM during term. Possibility of predicting PPRM by using the platelet count and the MPV value of the first trimester could be considered in obstetric practice.