Background and aims To investigate the association between serum mean platelet volume (MPV) levels and meconium stained amniotic fluid (MSAF).

Methods MPV, serum reactive protein and haemoglobin levels, leukocyte and thrombocyte counts were measured in 106 infants with MSAF and 78 healthy control infants for comparison. Demographic factors including gestational age, birth weight, gender, delivery mode, parity, maternal pregnancy diseases, intratracheal infections, maternal smoking and severity of meconium aspiration syndrome were recorded.

Results The mean values of MPV in infants with MSAF were significantly lower than in the control group statistically ($p < 0.001$). There was no statistically significant difference in haemoglobin levels, and leukocyte and thrombocyte counts in the study group compared to the control group ($p > 0.05$). There was no statistically significant difference in MPV levels in the infants with meconium aspiration syndrome (MAS) compared to the study group ($p > 0.05$). A 9.90 fl [area under the curve (AUC: 0.788)] optimal cutoff value of MPV with a sensitivity of 78.1% and specificity of 74.3% was determined in infants with MSAF.

Conclusions Our data suggest that the MPV levels were significantly lower in infants with MSAF than that in healthy infants. This might be associated with hypoxic process. However, the MPV levels were statistically similar between MSAF and MAS, leading to a failure of detecting patients with or without severe disease.