Evaluation of a maternal sepsis assessment scoring system in prediction on intra-amniotic infection in PPROM
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Objective
To design an obstetrical sepsis scoring system to identify of acute chorioamnionitis and/or neonatal sepsis in pregnant women of preterm premature rupture of membrane (PROM).

Methods
A novel Maternal Sepsis Assessment (MASA) scoring system was created by modifying validated systemic inflammatory response syndrome (SIRS) scoring criteria in accordance with recognized physiologic changes of pregnancy and maternal serum markers. The MASA scoring system was applied to a prospective observational cohort of singleton pregnancies of 24-34 weeks of gestation with clinical- and laboratory- confirmed preterm PROM from January 2012 through October 2014. The primary outcome was histological acute chorioamnionitis. Secondary outcomes were neonatal sepsis, length of the preterm PROM-to-delivery interval, antibiotic use, adverse perinatal outcomes (fetal or neonatal death, respiratory distress, grade III to IV interventricular hemorrhage and necrotizing enterocolitis), and maternal morbidity. Receiver operating characteristic curves were constructed to estimate the optimal score for identification of risk of acute chorioamnionitis.

Results
In all, 276 eligible pregnancies were included. 133 (48%) had evidence of chorioamnionitis after delivery. Patients with chorioamnionitis were more likely to hospitalize and deliver at an earlier gestational age (hospitalization, 26.5 weeks compared with 29.7 weeks, P < .001; delivery, 28.4 weeks compared with 32.1 weeks, P < .001) and have shorter preterm PROM-to-delivery interval (12.8 days compared with 16.3 days, P < .001). MASA score was elevated 24 to 48 hours before delivery in women with preterm PROM with chorioamnionitis compared with those without chorioamnionitis (4.2 compared with 0.33, P < .001). The MASA score had an area under the curve of 0.95 for chorioamnionitis. A MASA score ≥ 3 (Maximal score 21) had an area under the curve of 0.91 with sensitivity of 89.3%, specificity of 96.7%, positive predictive value of 73.8%, and negative predictive value of 99.9% for chorioamnionitis, with an adjusted odd ratio of 98 (95% confidence interval, 21-543). A MASA score ≥ 3 was independently associated with risk of chorioamnionitis, neonatal sepsis, length of the preterm PROM-to-delivery interval, adverse perinatal outcomes, and maternal morbidity.

Conclusion
A novel Maternal Sepsis Assessment scoring system specifically for a preterm PROM population appears to reliably identify patients at high risk of intra-amniotic infection.