

Intertwin EFW and UA PI discordance for the prediction of adverse perinatal outcome in twin pregnancies. External validation.

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Objective

To externally validate multiparametric models based on intertwin EFW and UA PI discordance for the prediction of Stillbirths (of one or both twins) or medically indicated ePTB before 34weeks' gestation for fetal indications in dichorionic diamniotic (DCDA) and monochorionic diamniotic (MCDA) twin pregnancies.

Methods

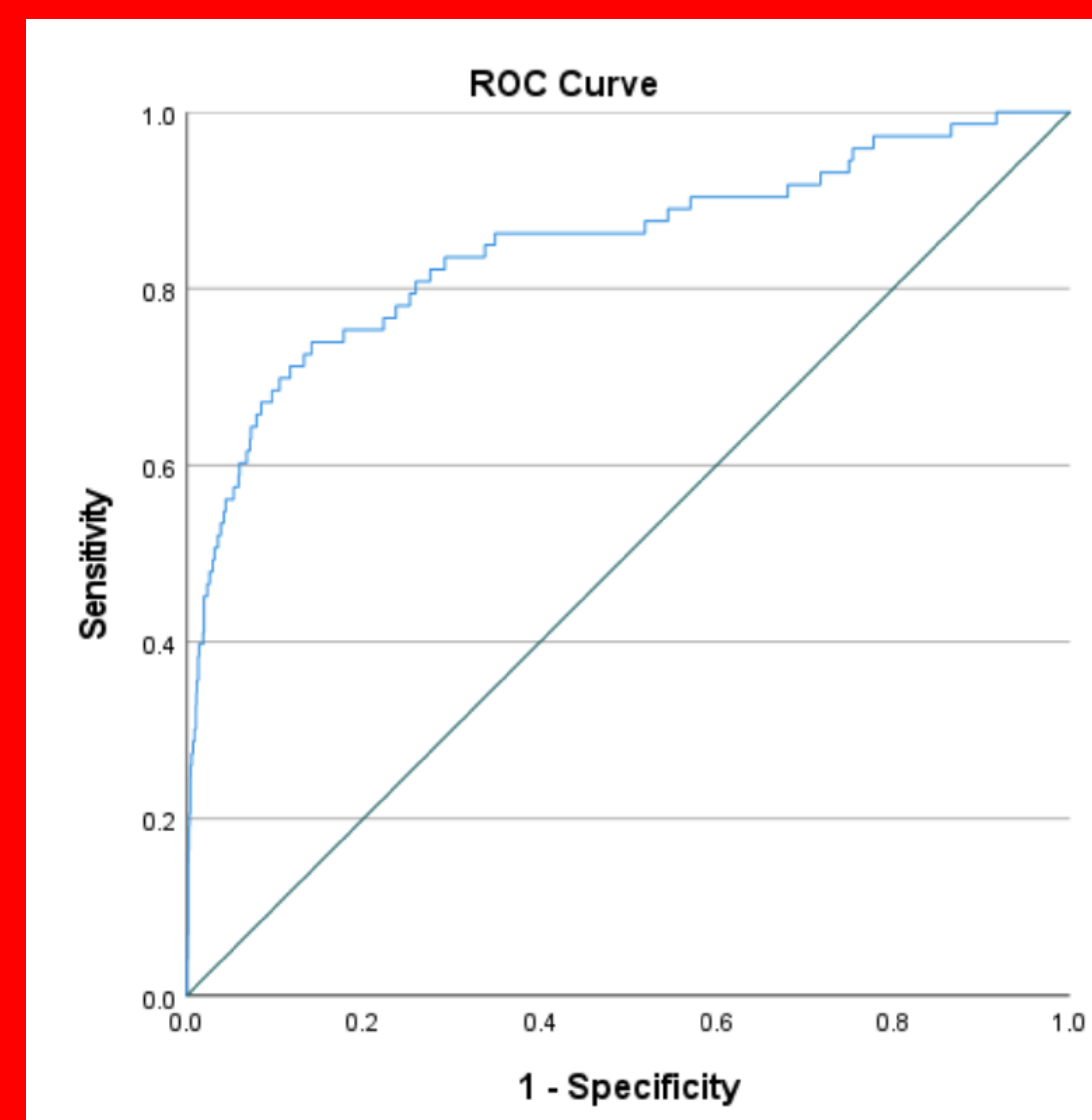
This was a multicentre retrospective cohort study including twin pregnancies managed at four international fetal medicine centres between 2013 and 2024. Pregnancies with an ultrasound assessment within two weeks before delivery or fetal demise were eligible for inclusion. The predictive performance of the previously developed DCDA and MCDA models was assessed by discrimination using receiver-operating-characteristic (ROC) curve analysis and by model calibration.

Result

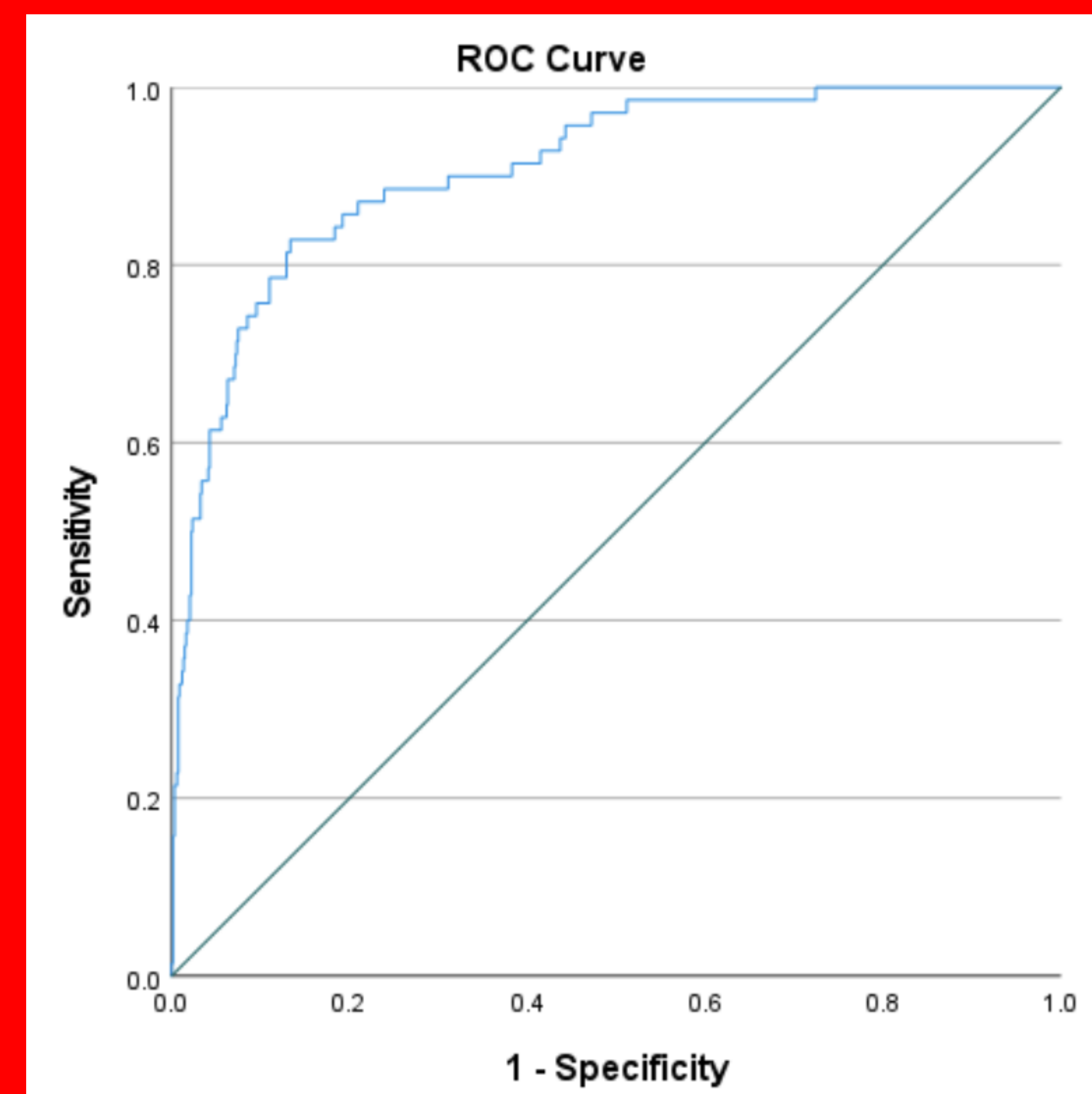
A total of 3147 twin pregnancies were included in the external validation cohort, comprising 2325 DCDA and 822 MCDA pregnancies. The DCDA prediction model showed good discrimination for the primary outcome, with an **AUC of 0.85 (95% CI, 0.79–0.90)**. The MCDA model demonstrated excellent discrimination, with an **AUC of 0.91 (95% CI, 0.87–0.94)**. The calibration analysis was satisfactory showing an intercept of 0.48 (95% CI, –0.09 to 1.06) and a slope of 1.13 (95% CI, 0.95–1.32).

Conclusions:

External validation confirmed the good predictive performance of multiparametric models integrating intertwin EFW and UA PI discordance for adverse perinatal outcome in both DCDA and MCDA twin pregnancies. These models may provide individualized risk stratification and support targeted fetal surveillance and management to improve clinical outcomes.



ROC curve of the prediction model in the external validation cohort of DCDA twin pregnancies.



ROC curve of the prediction model in the external validation cohort of MCDA twin pregnancies.