

Prediction of preeclampsia and adverse perinatal outcomes using repeated versus single sFlt-1/PIGF measurements in small fetuses

Marta Dalmau, Alba Casellas, Ester Del Barco, Anna Brox, Patricia Diaz, Marta San José, Eva Roldán, Joaquín Temprado, Mireia Armengol, Berta Serrano, Erika Bonacina, Manel Mendoza.

Objectives:

The study aimed to evaluate the utility of repeated sFlt-1/PIGF measurements, as compared to a single measurement, in predicting preeclampsia (PE) and adverse perinatal outcomes (APO) in small fetuses.

Methods:

A retrospective analysis of prospectively collected data was conducted on 393 fetuses with an estimated fetal weight below the 10th percentile after 20 weeks of gestation. Linear regression was used to assess the additional predictive accuracy of the absolute difference between two sFlt-1/PIGF determinations (second minus first sFlt-1/PIGF). The predictive accuracy of the resulting model was compared with that of a single sFlt-1/PIGF measurement by evaluating the area under the receiver operating characteristic curve (AUC).

Results:

For predicting PE, repeated measurements demonstrated an AUC of 0.908 (95% CI: 0.880–0.937), compared to an AUC of 0.894 (95% CI: 0.862–0.925) for a single measurement ($p=0.03$).

For predicting APO, the model showed an AUC of 0.852 (95% CI: 0.814–0.890), compared to 0.847 (95% CI: 0.809–0.885) for a single measurement ($p=0.503$).

Conclusions

In small fetuses beyond 20 weeks of gestation, repeated measurements of the sFlt-1/PIGF ratio improve predictive accuracy for PE compared to a single measurement. However, despite being statistically significant, the clinical benefit of repeated measurements is limited. Conversely, for predicting APO, the accuracy of repeated measurements is comparable to that of a single determination. This study suggests that a single measurement may be sufficient to predict pregnancy complications in small fetuses.

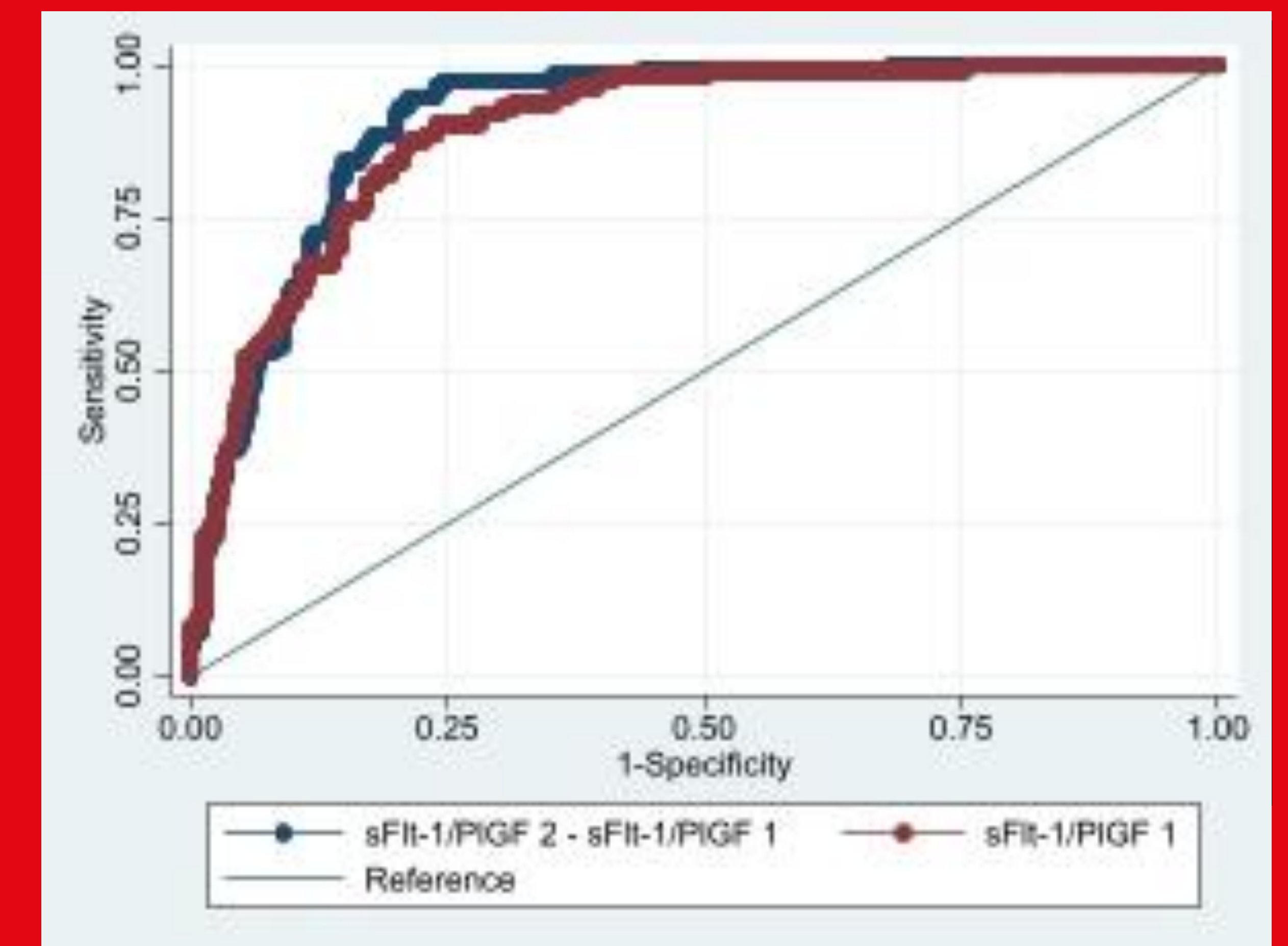


Figure 1. Prediction of PE

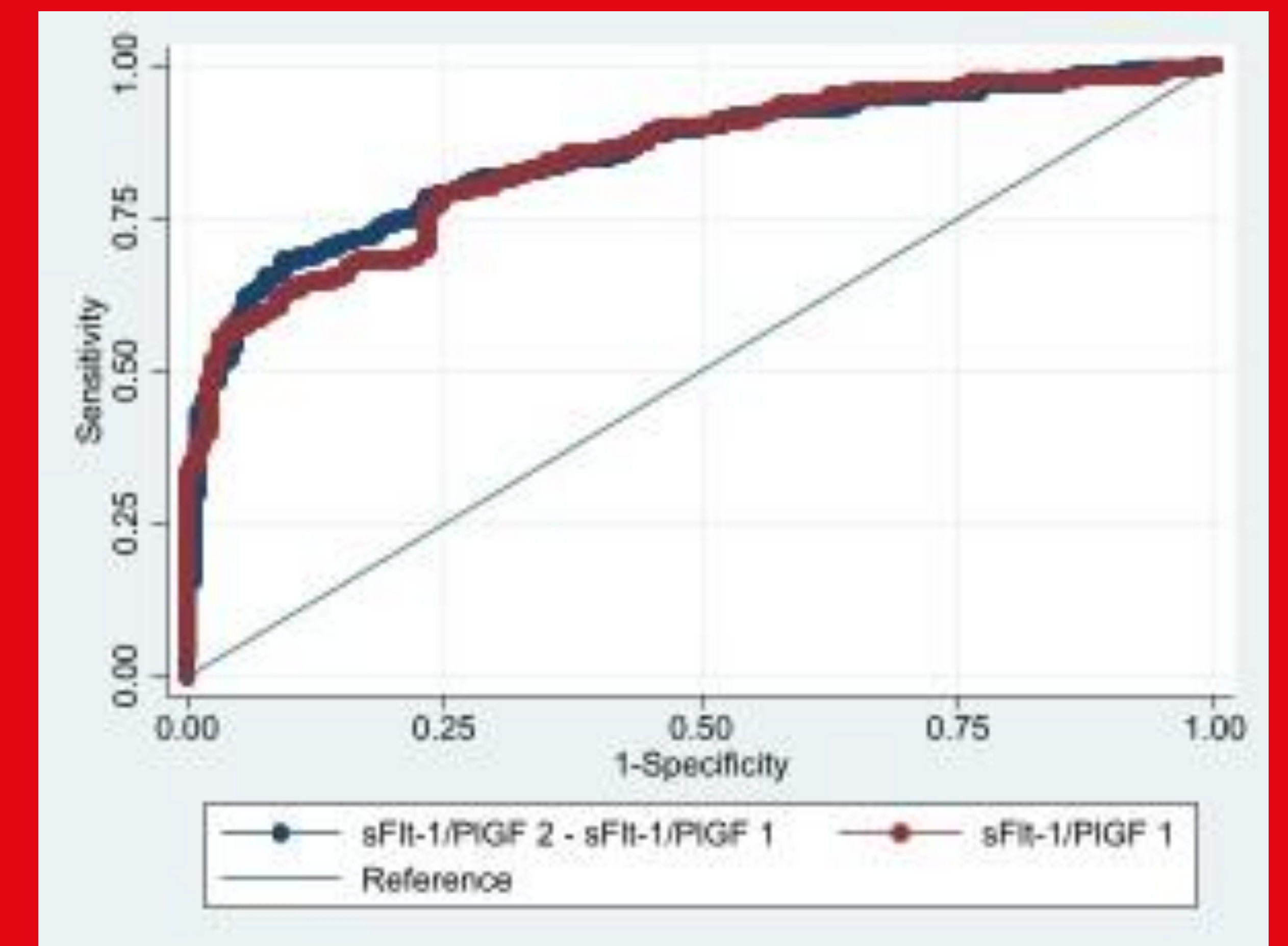


Figure 2. Prediction of APO