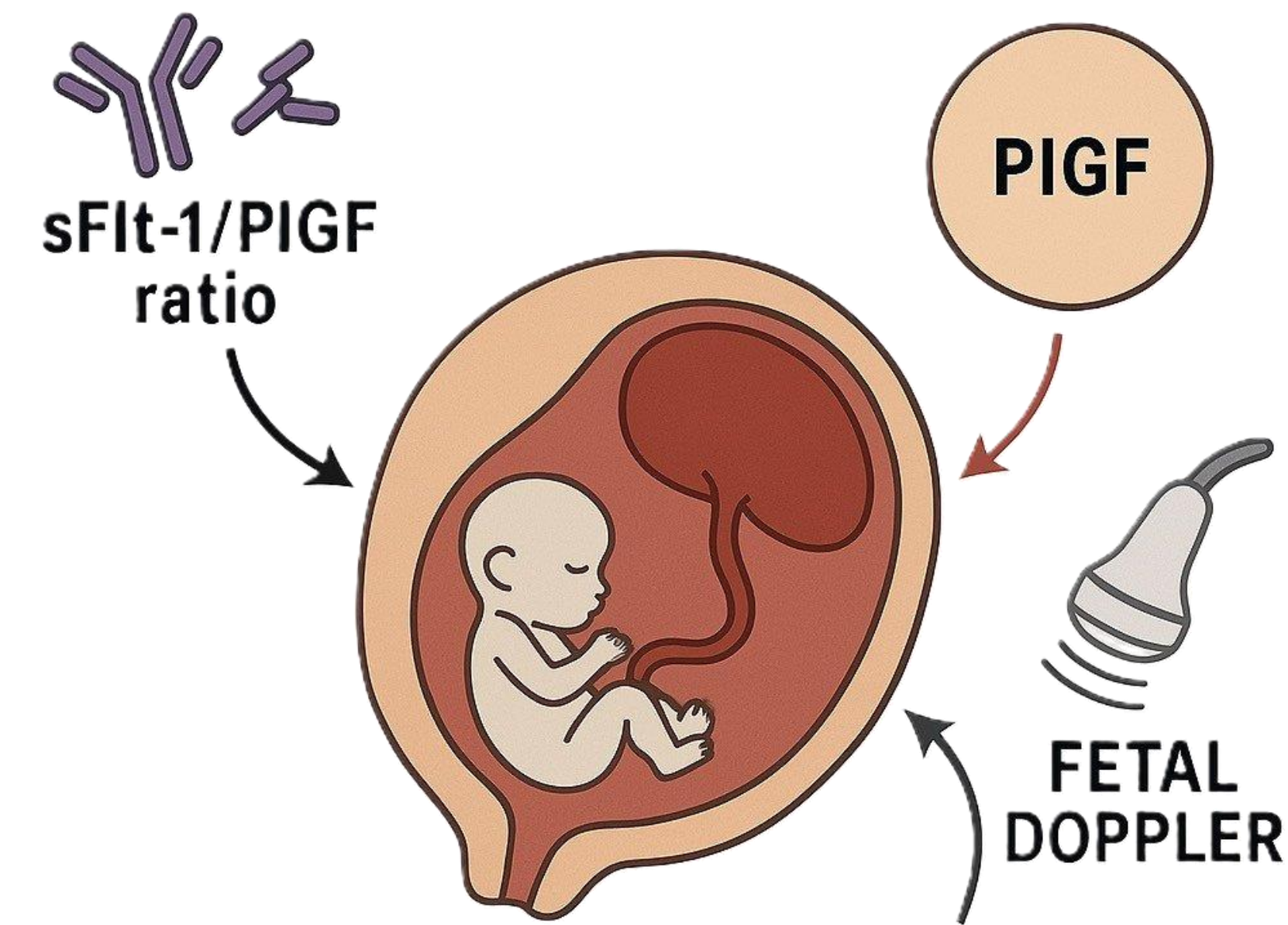




Diagnostic accuracy of sFlt-1/PIGF, PIGF, and Doppler for predicting adverse outcomes in early-onset small fetuses with and without pre-eclampsia

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Introduction

Early-onset fetal smallness is a significant risk factor for **adverse perinatal outcomes (APO)** and **preeclampsia (PE)**. Accurate prediction of these complications is critical for timely clinical intervention. In these cases, Doppler ultrasound assessment and biomarker analysis, such as the sFlt-1/PIGF ratio and PIGF, have shown to be predictive of adverse outcomes. However, their predictive performance in pregnancies complicated by early-onset small fetuses, with and without PE, remains unclear.

Objectives

To compare the predictive accuracy of the **sFlt-1/PIGF ratio**, **PIGF alone**, and **Doppler ultrasound** for predicting APO and PE in pregnancies complicated by early onset small fetuses with and without PE at diagnosis.

Methods

- **Design:** Retrospective analysis of prospectively collected data.
- **Population:** 469 pregnancies with an estimated fetal weight below the 10th percentile at <32 weeks in a tertiary care hospital.
- **Abnormal Doppler:** UA>95th percentile (including A/REDF), DV>95th percentile, MCA or CPR <5th percentile (≥32w).
- **APO:** Apgar 5' <7, pH cord artery <7.0, NICU>48h, stillbirth, neonatal death, RDS, BPD, Sepsis, NEC, retinopathy grade III-IV, IVH grade III-IV, leukomalacia
- Separate analysis for **cases with and without PE** at the time fetal smallness was diagnosed.

Conclusions

- **sFlt-1/PIGF ratio and PIGF alone** are strong predictors of APO in the long term in early-onset small fetuses.
- **Both outperform Doppler ultrasound**, especially in pregnancies complicated by PE.
- The predictive performance of angiogenic factors is not only associated to PE-related complications, but the presence of **PE enhances their predictive accuracy**.
- sFlt-1/PIGF and PIGF are key biomarkers for predicting pregnancy outcomes in early-onset small fetuses.

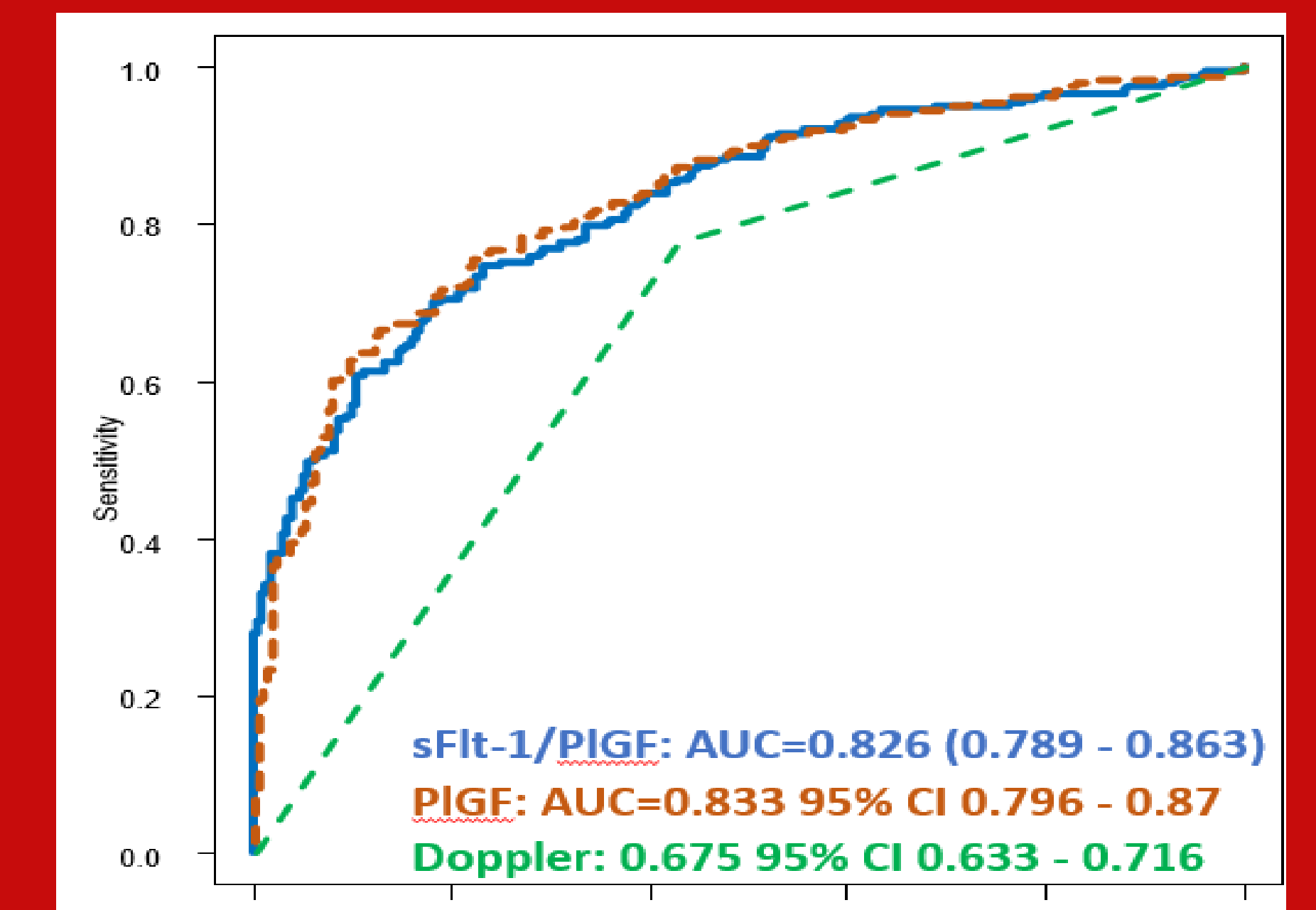


Figure 1. All cases (n=469).
sFlt-1/PIGF vs. PIGF: p=0.465
PIGF vs. Doppler: p<0.001

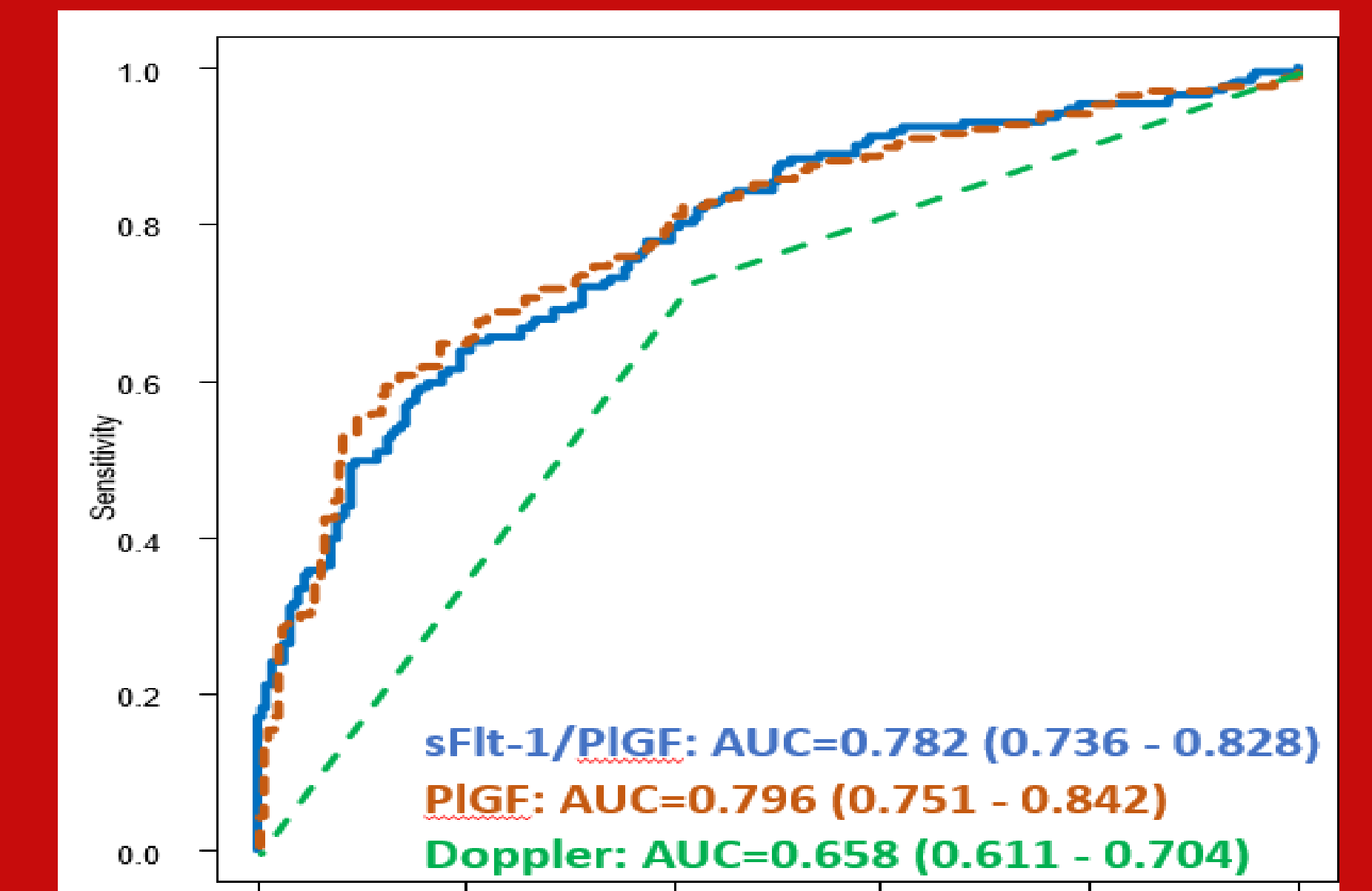


Figure 2. Cases without PE at diagnosis (n=395).
sFlt-1/PIGF vs. PIGF: p=0.110
PIGF vs. Doppler: p<0.001

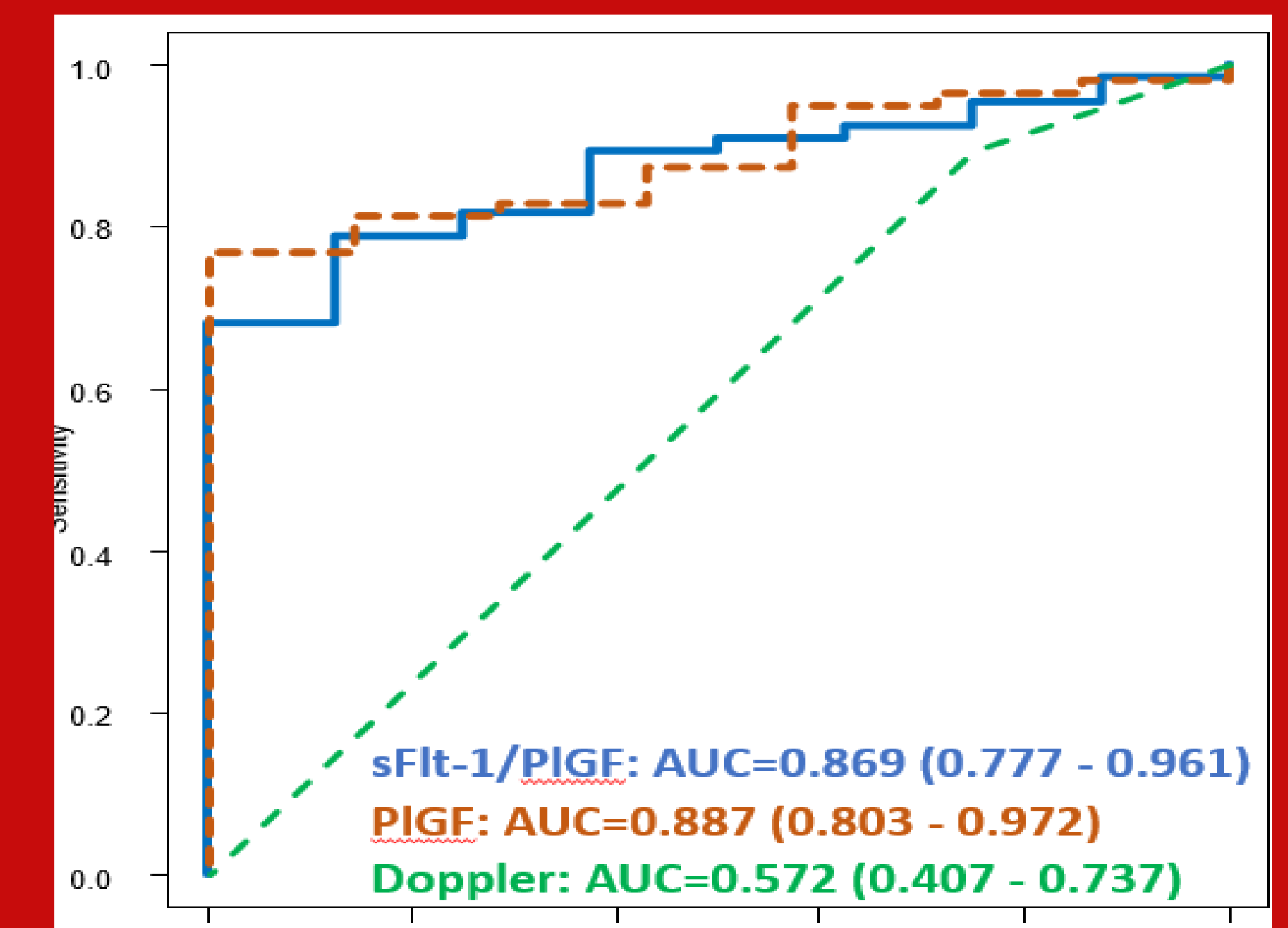


Figure 3. Cases with PE at diagnosis (n=74).
sFlt-1/PIGF vs. PIGF: p=0.618
PIGF vs. Doppler: p=0.002