

Can NT-proBNP enhance accuracy of angiogenic factors for diagnosis of preeclampsia?

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Introduction

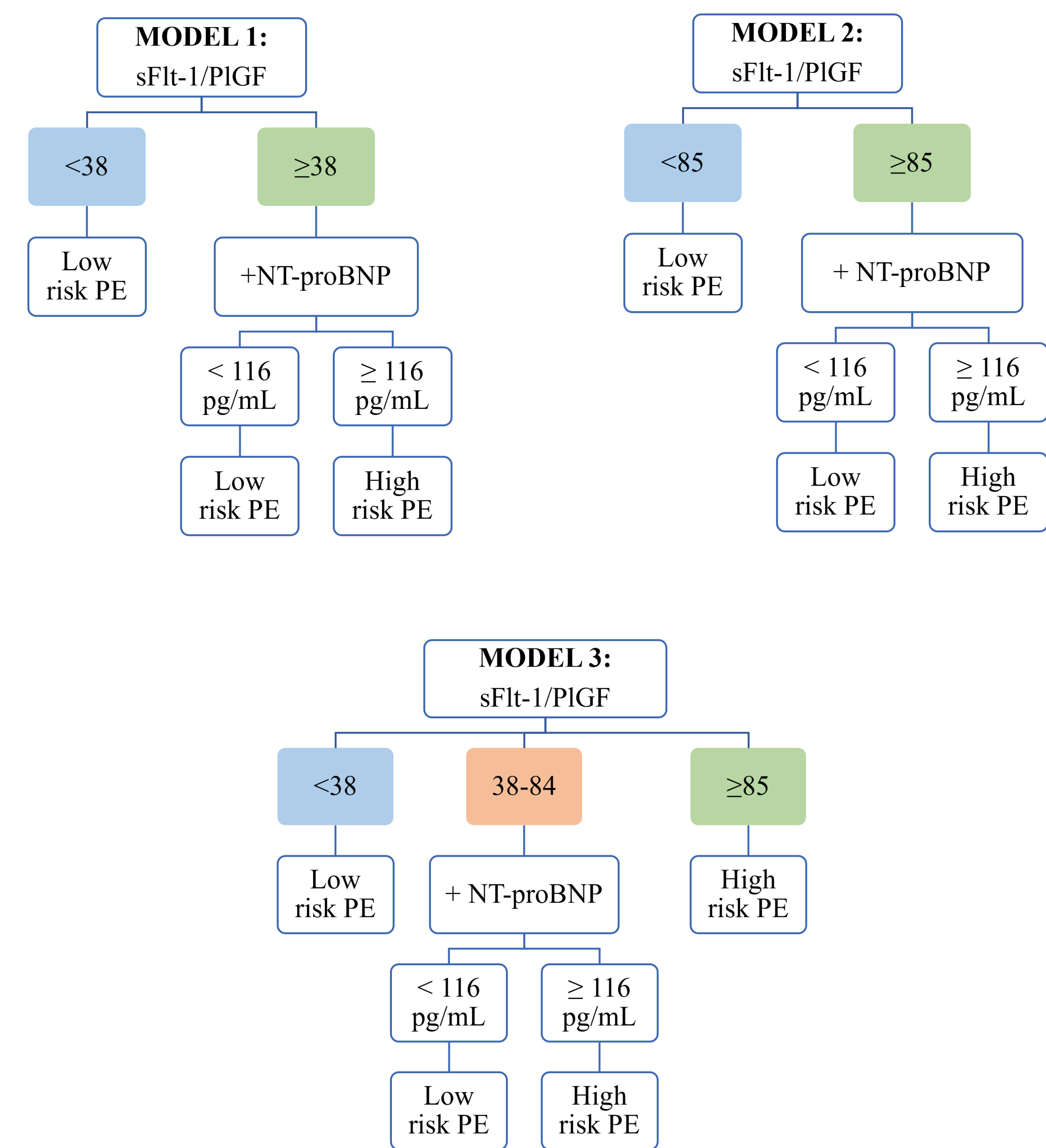
No individual biomarker has yet improved the predictive value of the sFlt-1/PIGF ratio in pregnant women suspected of having preeclampsia (PE). However, a NT-proBNP cut-off point of 116 ng/L appears to be a good predictor of the disease. The aim of the study was to evaluate whether addition of NT-proBNP to the sFlt-1/PIGF ratio improves diagnosis of PE and complications within the next week.

Methods

Multicentric, retrospective case-control study performed with singleton pregnancies with suspected PE between 24⁺⁰ and term, between March 2018 and December 2020. Three models were developed (Figure 1).

Results

324 women with clinical suspicion of PE (424 serum samples) were included. Global incidence of PE was 23.4% (n=74), and early-preterm PE developed in 8.5% of cases (n=27). Term PE was present in 6.3% of cases (n=20).



	sFlt-1/PIGF ratio ≥38	sFlt-1/PIGF ratio ≥85	NT-proBNP ≥116 ng/L	Model 1	Model 2	Model 3
Sensitivity, % (95%CI)	96.3 (87.2-99.6)	77.4 (63.8-87.7)	72.2 (85.4-83.5)	70.4 (56.4-82.0)	59.3 (45.0-72.4)	88.9 (77.4-95.8)
Specificity, % (95%CI)	83.8 (79.4-87.6)	94.9 (92.0-97.0)	94.3 (91.2-96.5)	98.2 (96.1-99.3)	98.8 (97.0-99.7)	94.3 (91.2-96.5)
PPV, % (95%CI)	64.5 (58.6-70.0)	82.3 (74.1-88.3)	79.4 (70.8-86.0)	92.3 (84.1-96.4)	93.8 (84.7-97.6)	82.6 (75.3-88.2)
NPV, % (95%CI)	98.7 (95.0-99.6)	93.3 (89.4-95.8)	91.7 (87.8-94.5)	91.6 (87.8-94.2)	88.8 (85.2-91.6)	96.5 (92.9-98.3)
AUC (95%CI)	0.900 (0.862-0.939)	0.863 (0.796-0.930)	0.833 (0.760-0.905)	0.843 (0.768-0.917)	0.790 (0.707-0.873)	0.916 (0.865-0.967)

Table 1. Assessment of NT-proBNP contribution to enhance PE prediction, compared to the sFlt-1/PIGF ratio alone.

Conclusions

NT-proBNP in combination with sFlt-1/PIGF ratio enhances predictive capability for diagnosing PE and its complications within one week, especially when the sFlt-1/PIGF ratio is between 38 and 85.