



*Review article*

# Risk Prediction Models for Hypertensive Disorders of Pregnancy: Role of 12-Lead Electrocardiography

Fabio Angeli<sup>1</sup>, Enrica Angeli<sup>2</sup>, Antonella D'Antonio<sup>1</sup>, Cristina Poltronieri<sup>1</sup>, Giuseppe Ambrosio<sup>1</sup>

<sup>1</sup>*Division of Cardiology, University of Perugia School of Medicine, Perugia, Italy*

<sup>2</sup>*Division of Gynecology and Obstetrics, Hospital San G. Battista, Foligno, Italy*

## SUMMARY

Hypertensive disorders represent the most common medical complications of pregnancy, affecting 6 to 8 percent of gestations. They may lead to severe maternal and fetal complications.

Several observational studies have highlighted that weight, systolic and diastolic blood pressure, obtained at antenatal visit prior to 16 weeks, may be suitable to stratify the risk of developing hypertensive disorders during pregnancy.

Recently, however, other markers have been proposed as potential predictors of hypertensive disorders during pregnancy. In this context, some electrocardiographic changes have shown significant power in refining risk stratification. Specifically, changes during pregnancy in QT interval and P wave morphology improved the accuracy of multivariable models for the prediction of hypertensive disorders. In particular, the presence of left atrial abnormalities at ECG seems to be associated with a marked increase in the risk of developing hypertensive disorders, and when included in a multivariable model taking into account some maternal features, it may discriminate between women who will develop hypertensive disorders during pregnancy and women who will remain normotensive. This prediction model was also able to identify pregnant women at increased risk for the occurrence of fetal/neonatal complications.

The aim of the present overview is to discuss the available data supporting the evidence that specific ECG patterns occurring early in pregnancy may have clinical relevance for risk prediction of hypertensive disorders.

**Key words:** hypertensive disorders, pregnancy, risk prediction models, eclampsia, blood pressure, electrocardiography

Corresponding author:

Giuseppe Ambrosio

e-mail: giuseppe.ambrosio@ospedale.perugia.it