

The impact of hypertensive disorders on disease progression in pregnancies affected by severe early-onset fetal growth restriction

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INTRODUCTION

- Fetal growth restriction (FGR) is associated with stillbirth and iatrogenic preterm birth.¹
- Maternal hypertension, chronic or preeclampsia (PE) developing in the second half of pregnancy, often coexists in pregnancies affected by FGR.²
- The TRUFFLE trial showed improved intact survival in early FGR (<34/40) is using surveillance of umbilical artery (UA) and ductus venosus (DV) Doppler indices and cCTG.
- Some guidelines recommend a blood pressure (BP) assessment at FGR diagnosis but this is poorly established practice.

The aim of this study is to investigate how hypertensive disorders affect the onset and progression of FGR

METHODS

- Retrospective cohort study of pregnancies diagnosed with FGR <36 weeks' gestation and monitored under the TRUFFLE protocol between January 2013 - July 2024.
- Pregnancies were stratified by maternal BP status:

- 1 Normotensive
- 2 Hypertensive disorder of pregnancy (HDP)
- 3 Pre-existing chronic hypertension (cHTN).

- Clinical characteristics, antenatal surveillance findings, delivery indications, and neonatal outcomes were compared between groups.

RESULTS

FGR+

Interval to delivery

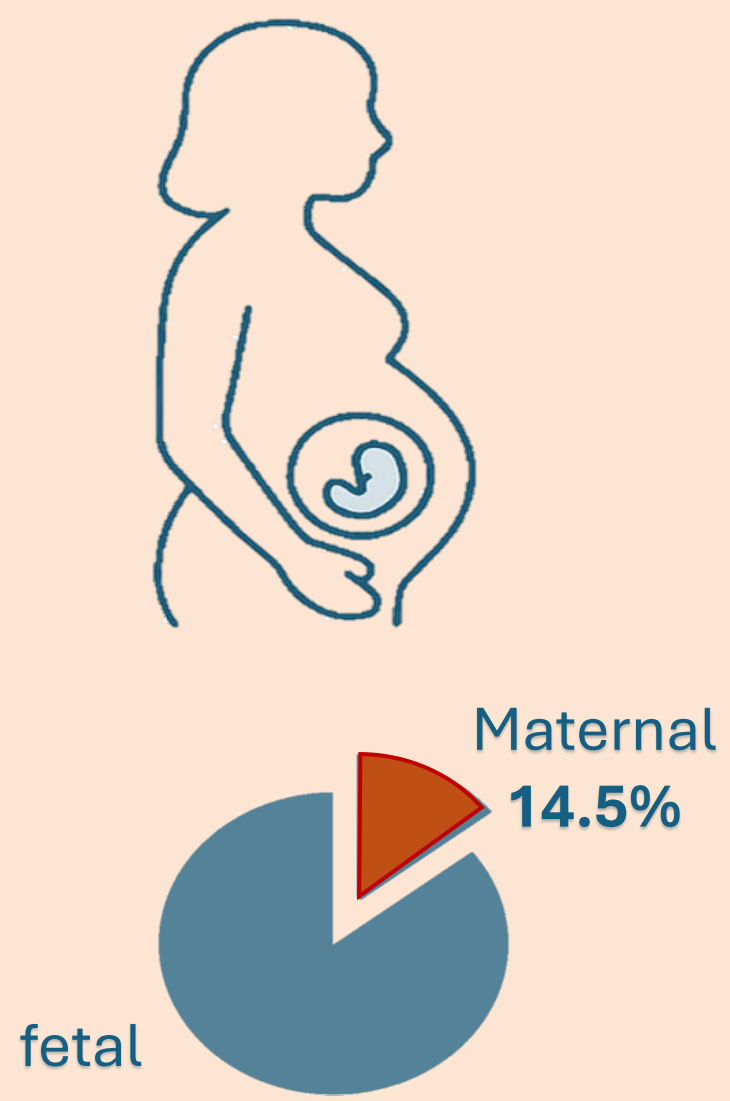
GA of delivery

Indication for delivery

Normotension

23 days

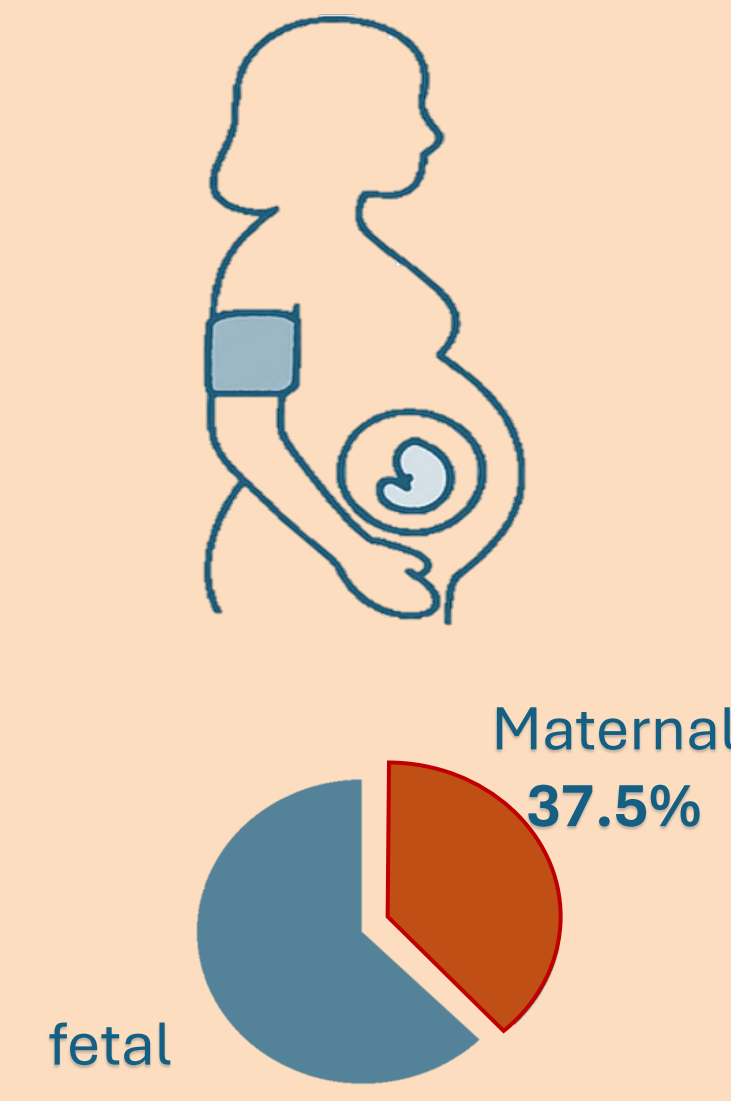
32 weeks



Hypertensive disorder of pregnancy

12 days

30 weeks



Chronic hypertension

9 days

29 weeks

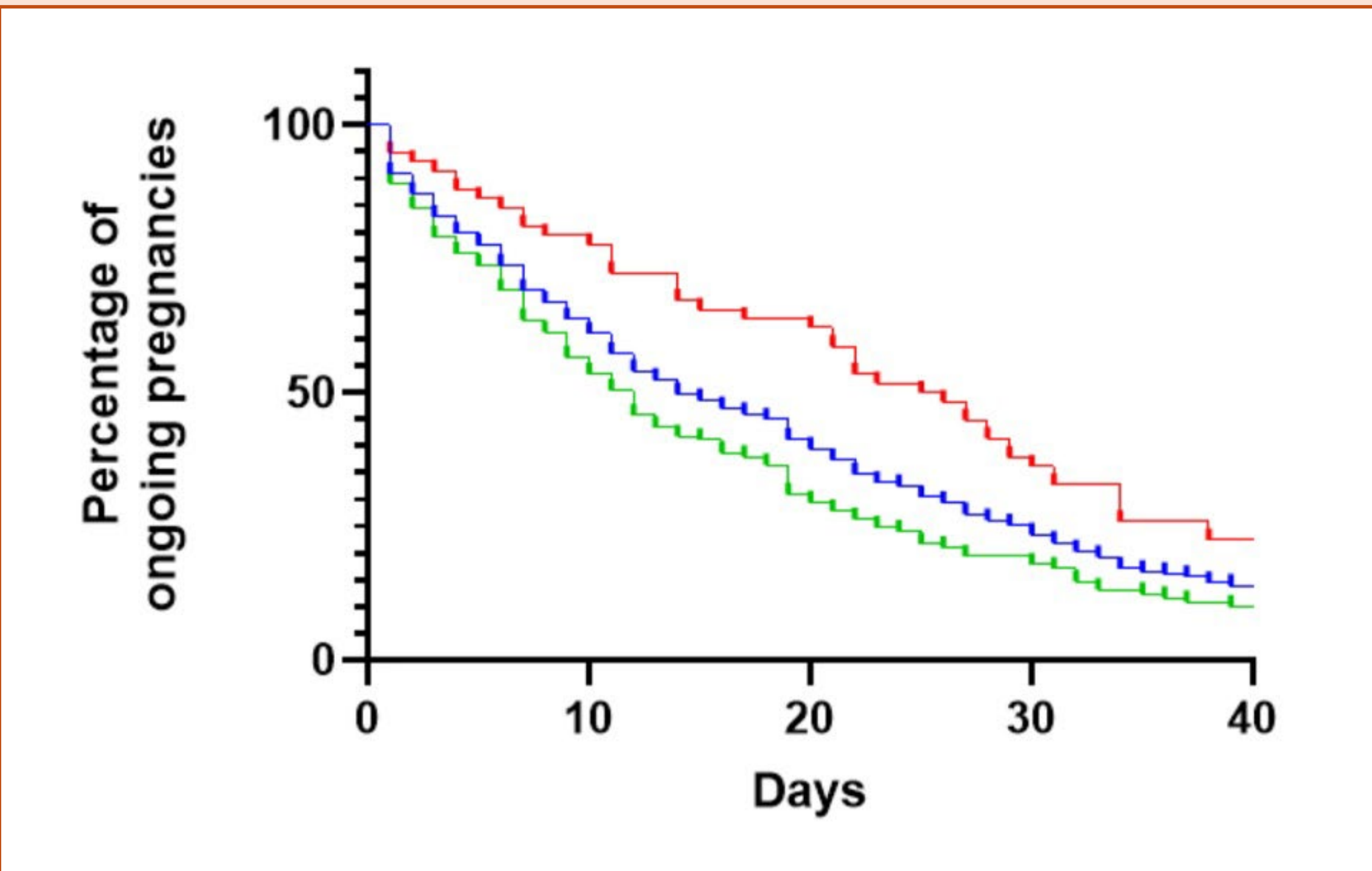
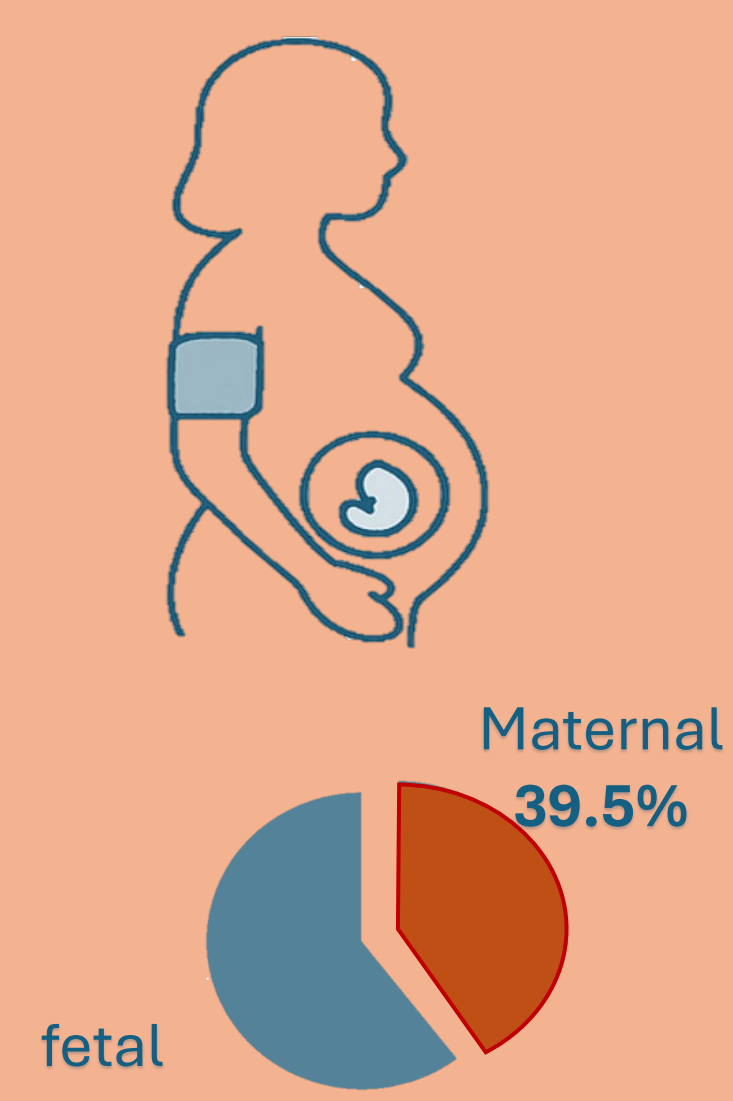


Figure 1. Survival curve showing the interval between diagnosis of FGR to delivery in the entire cohort (blue line). There was a significant difference ($p=0.0019$) in the diagnosis to birth interval for FGR pregnancies with (green line) and without (red line) hypertension.

- 196 singleton pregnancies met the inclusion criteria.
- 68% were affected by cHTN or new onset HDP.
- ↑ % hypertensive pregnancies were delivered for maternal indications ($p=0.004$)
- Normotensive pregnancies were more frequently delivered due to abnormal umbilical artery Dopplers (29.0% vs. 14.6% HDP, 13.2% chronic hypertension; $p=0.041$).
- Interval to delivery was shorter, and gestational age at delivery was earlier, for those affected by hypertension
- Neonates of mothers with cHTN had higher birthweight centiles ($p=0.004$), but neonatal outcomes were comparable across all groups.

CONCLUSION

- Incidence of hypertension in the context of FGR significantly impacts timing and gestational age of delivery and birthweight centile.
- An integrated approach to combine maternal and fetal monitoring in these pregnancies is required to optimise birth outcome.

References: 1. Gordijn SJ, Beune IM, Thilaganathan B, Papageorgiou A, Baschat AA, Baker PN, Silver RM, Wynia K, Ganzevoort W. Consensus definition of fetal growth restriction: a Delphi procedure. *Ultrasound in Obstetrics & Gynecology*. 2016;48(3):333-339. doi:10.1002/uog.15884
2. Cluver CA, Bergman L, Bergkvist J, Imberg H, Geerts L, Hall DR, Mol BW, Tong S, Walker SP. Impact of fetal growth restriction on pregnancy outcome in women undergoing expectant management for preterm pre-eclampsia. *Ultrasound in Obstetrics & Gynecology*. 2023;62(5):660-667. doi:10.1002/uog.26282