

Contribution of fetal growth restriction to stillbirth in twin compared to singleton gestations

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INTRODUCTION

The objectives of this study were:

- Primary: to determine the association between fetal growth restriction (FGR) and stillbirth in multiple and singleton pregnancies.
- Secondary: to elucidate the contribution of FGR to early (<32 weeks) and late (≥32 weeks) stillbirth.

We also compared the association between FGR and stillbirth in twin pregnancies, according to the use of twin compared to singleton reference standards.

MATERIALS AND METHODS

This was a retrospective cohort study of pregnancies receiving obstetric care and delivering at St George's Hospital.

All pregnancies from June 1999-December 2022 were included. Exclusion criteria included deficient data regarding gestational age at birth, miscarriage or livebirth ≤23+6 weeks, and termination of pregnancy. FGR and small for gestational age (SGA) were defined as birthweight <5th and <10th centile, respectively. The four study groups were early and late stillbirths in singleton and multiple pregnancies. Logistic regression assessed potential associations between FGR and stillbirth.

CONCLUSIONS

In multiple pregnancies, FGR is a stronger risk factor for stillbirth than in singletons, in particular for early stillbirth. FGR diagnosed using twin charts is a stronger risk factor for stillbirth than FGR diagnosed using singleton charts.

RESULTS

Among 96,166 singleton pregnancies, 507 (0.53%) were stillborn. Of 3,989 fetuses from multiple pregnancies, 61 (1.53%) were stillborn.

FGR and SGA were both risk factors for stillbirth in **singleton pregnancies** (OR 8.67 [95%CI 7.26–10.34] and 6.31 [5.29–7.52], respectively). Similarly, FGR and SGA were strong risk factors for stillbirth in **multiple pregnancies** (OR 23.77 [13.44–42.03]) and 20.26 [11.17–36.75]).

In **singletons**, 59.8% of early stillbirths were SGA, and 44.7% of late stillbirths were SGA. FGR was a stronger risk factor for early stillbirth among singleton pregnancies (OR early 13.32 [CI 10.32–17.20] vs (OR late stillbirth 5.61 [4.27–7.37], p<0.001). In **multiple pregnancies**, FGR was also a stronger risk factor for early stillbirth (OR early 37.04 [15.33–89.52] vs OR late stillbirth 22.92 [7.87–66.75], p<0.001).

In **multiple pregnancies**, a greater proportion of fetuses were diagnosed as SGA when the *singleton* compared to the *twin-specific chart* was used (49.3% 11.1%). FGR was a stronger risk factor for stillbirth when diagnosed by twin compared with singleton charts, (OR 23.77 [13.44–42.03] vs 5.97 [3.21–11.08], p=0.042). Interestingly, FGR was a stronger risk factor for early stillbirth when diagnosed with twin compared to singleton charts (OR 37.04 [15.33–89.52] vs OR 5.78 [2.48–13.45], p=0.029).