# [Maternal and fetal outcomes in pregnancies complicated by Marfan syndrome.](https://www.ncbi.nlm.nih.gov/pubmed/31129614)

Cauldwell M, Steer PJ, Curtis SL, Mohan A, Dockree S, Mackillop L, Parry HM, Oliver J, Sterrenberg M, Wallace S, Malin G, Partridge G, Freeman LJ, Bolger AP, Siddiqui F, Wilson D, Simpson M, Walker N, Hodson K, Thomas K, Bredaki F, Mercaldi R, Walker F, Johnson MR.

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**Take Home Points:**

* No deaths occurred in this cohort of 258 pregnancies in 151 Marfan patients
* The aortic dissection rate was 1.9% (mainly type B)
* No specific clinical or imaging predictors of dissection were identified
* A significant but small increase in aortic root diameters was noted following pregnancy
* Neonates of those on betablocker therapy had lower birth weights
* The elective Caesarian section rate was higher in patients with dilated aortic roots
* Post-partum haemorrhage complicated 40% of deliveries (double that of the general population).



**Commentary by Dr. Blanche Cupido (Cape Town), section editor *of ACHD Journal Watch*:** Marfan syndrome is associated with an increase in cardiovascular mortality, especially relating to aortic dissection. Pregnancy is thought to increase the risk of aortic dissection but previous studies were small and variable in its descriptions of specific complications. There is no good data to show that betablocker use reduces the risk of aortic dissection in pregnancy.

This retrospective observational study was conducted at 12 UK centers with the aim of gaining information to help direct counselling and management of Marfan Syndrome in pregnancy. Patients delivering between January 1998 and March 2018 were enrolled and data pertaining to maternal and neonatal outcomes recorded.

The primary outcome was the occurrence of aortic dissection during pregnancy or up to 6 months post-partum. The secondary cardiac outcomes were cardiac surgery or stroke. Obstetric outcomes (gestational hypertension, pre-eclampsia, preterm delivery, postpartum haemorrhage and venous thromboembolism) and neonatal outcomes (small for gestational age, stillbirth and neonatal unit admission) were recorded.

Two hundred and fifty-eight pregnancies occurred in 151 patients. These included 226 pregnancies >24 weeks gestation, 20 miscarriages and 12 terminations. There were 213 live births. Thirty-five pregnancies occurred in 21 women with previous ascending aorta replacements. Only 47.8% of women had preconception counseling in their first pregnancy. The median age at diagnosis was 14.5 years and the median age at pregnancy 29 years. Most patients (80%) had an aortic root diameter of <40mm on echo pre-conception.

Five patients had an aortic dissection during pregnancy (1 type A, 4 type B). No specific predictors for aortic dissection were identified, but the sample size was small and moderate associations could therefore not be excluded. 6 Cardiac surgeries and 2 strokes occurred during the pregnancies and post-partum period. After excluding women with prior aortic root replacements, echo data pre- and post-pregnancy was available in 58 women. The median aortic root size pre-pregnancy was 36mm and 37mm post pregnancy – a small but significant increase (p=0.01). This change was not significantly modified by the use of betablockers.

There was no correlation between aortic root size and the time of delivery. However, in patients with a maximum aortic root diameter of <40mm, the caesarian section rate was 26% compared to 70.4% in those with a root diameter > 40mm (p<0.001).

Betablocker use was documented on 64.2% of pregnancies and was more likely to be prescribed in women with larger aortic roots. The median birth weight was significantly reduced in women on betablockers compared to those who were not taking it (3024 g vs 3310 g, p=0.002).



40% of women experienced post-partum haemmorhage – this is double the rate of the general population.