Pregnancy Outcomes and Aortic Dimensions in Repaired Aortic Coarctation

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Introduction Aortic coarctation has an incidence of 1 per 5000 livebirths and represents 5-10% of all congenital cardiac lesions. With modern management, prognosis is good and most women will survive to childbearing age. There is, however, concern that pregnancy may result in significant morbidity and mortality. Recent studies report hypertension related complications and aortic dissection but little is known about the effect of pregnancy on aortic dimensions.

Methods All pregnancies in women with repaired coarctation managed by the Newcastle upon Tyne Hospitals Trust over the last decade were identified. Those who had had undergone cardiac magnetic resonance (MR) before and after pregnancy were included in this study. Clinical and obstetric data was obtained and MR scans were reviewed to determine dimensions of the aortic root, ascending aorta and descending aorta before and after pregnancy.

Results 22 women with repaired coarctation were identified to have been pregnant. Of these, nine women (age 27.5yrs, all end to end anastomoses) with ten pregnancies underwent serial MR and are the subjects of this study. Three women had bicuspid aortic valves and three had pre-existing dilatation of the ascending aorta (one patient had both). One woman had essential hypertension. Five women were delivered by Caesarean section (three emergency), four had instrumental delivery and two had normal vaginal delivery. One woman was delivered at 35 weeks for intrauterine growth restriction. All others delivered at term. The mean duration of the first, second and third stages of labour were 10 hours 54 minutes, 2 hours 28 minutes and 6 minutes respectively. Mean birth weight was 3482±487 grammes. Two women required blood transfusion post-partum. MR performed at 24 months before and 20 months after pregnancy showed no change in dimensions of the aortic root at the sino-tubular junction (30.3 v 33.1mm p=0.41), ascending aorta (29.0mm versus 29.5mm p=0.85) or descending aorta (19.4mm versus 18.8mm p=0.81).

Conclusion In this small cohort, obstetric outcomes were good. A high operative delivery rate was observed which is in keeping with reports in larger series. Aortic dimensions did not significantly change following pregnancy, however, further prospective data collection is warranted.