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Coarctation of the aorta repair in neonates under three months of age: mortality and risk factors for reintervention

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OBJECTIVES:

The main challenge of aortic coarctation repair in neonates is to get durable results without morbidity. We aimed to describe the prognostic factors of mortality and secondary intervention procedure in order to adapt the diagnosis announcement, the surgical strategy and the long-term follow-up.

METHODS:

We performed a retrospective study on neonates under three months of age who underwent primary aortic coarctation repair without associated congenital heart disease (except VSD), between January 2000 and March 2014.

RESULTS:

We reviewed 530 patients. Three hundred and eight (58%) patients had isolated coarctation and 222 (42%) had a coarctation with ventricular septal defect (CoA+VSD). Three hundred and eighty five patients (72.6%) underwent an isolated coarctation repair, 51 patients (9.6%) had coarctation repair with closure ventricular septal defect (VSD), and 94 patients (17.8%) had coarctation repair and banding pulmonary artery (PA). Mean follow-up was 4.87 years +/- 4.5 years (95%). Freedom from event were 80% at one year and 70% at five years for the whole population, and 85% at one year and 80% at five years for isolated coarctation. Overall mortality was 3.6% (19 patients) without significant difference between surgical strategies. In multivariate analysis, the risks factors of death were mitral stenosis ($p=0.0074$), presence of VSD ($p=0.037$) and low weight at surgery ($p=0.001$). The risk factors of reintervention were postnatal diagnosis ($p=0.0081$), presence of VSD ($p=0.0001$), prostaglandin treatment before surgery ($p=0.0171$) and low weight at surgery ($p=0.0294$).

CONCLUSION:

This study underlines the necessity to improve the antenatal diagnosis and the use of prostaglandin to decrease the reintervention risk in neonates with aortic coarctation. Weight at surgery is one of the mortality and reintervention risk factors, therefore surgery must be delayed if possible.