

Coarctation of the Aorta: predictors of reintervention and persistence of systemic hypertension

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INTRODUCTION

Effective correction of coarctation of the Aorta (CoA) can be associated with long term morbidity, such as recoarctation or persistence of systemic hypertension (HT). The aim of this study is to identify possible predictors for these long term complications.

METHODS

Retrospective study in a reference center using patient-related and intervention type covariates such as age of intervention, weight, gender, age at follow-up, pressure gradients prior and post procedure and type of treatment (surgery vs dilation with or without stent implantation). Cox proportional hazards and logistic regression models were used for reintervention-free survival and persistence of hypertension, respectively.

RESULTS

A total of 275 patients with CoA were analyzed: 66% male, with median age of 2 years and median weight of 12kg; 44.7% underwent surgery (n=123, median age 23days), 40% balloon dilatation (BD) (n=110, median age 4y) and 15.3% underwent stent implantation (n=42, median age 27y). 55 patients (20%) required reintervention, most frequently balloon dilatation.

The risk of reintervention was higher for patients with higher post-intervention gradients (even <20 mmHg) both by univariate (hazard ratio 1,06, p<0,01) and adjusted analysis (HR 1,07, p<0,01).

Percutaneous methods did not differ from surgery concerning risk of reintervention in univariate analysis (hazard ratio 0,58 and 0,93, respectively for stent implantation and BD, p=NS) and multivariate analysis adjusted for age at time of treatment and initial gradient (HR 2,27 and 1,77 respectively for stent and BD, p=NS).

Persistence or late appearance of HT was predicted by higher initial gradients in both univariate and adjusted analysis (OR 1,03, p<0,01 and p<0,05 respectively). No statistically significant difference was found between surgical and percutaneous approach at first intervention in predicting HT at follow up on adjusted analysis.

Age at intervention or gender did not influence need for reintervention or presence of HT at long term follow up.

CONCLUSION

With careful selection of patients for treatment, the type of procedure does not seem to predict the need for reintervention. Higher gradients (even < 20 mmHg) after surgery or intervention are predictive of need for reintervention. There is a correlation between higher initial gradients and presence of HT at follow up.