Congenital Heart Disease

RADIATION DOSE BENCHMARKS DURING CARDIAC CATHETERIZATION FOR CONGENITAL HEART DISEASE IN THE UNITED STATES

Oral Contributions
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Background: There is a paucity of published literature with regard to radiation doses during catheterization for congenital heart disease(CHD). Children and adolescents are at a higher risk of long term adverse effects of radiation. Obtaining benchmark radiation data is essential for assessing impact of quality improvement initiatives for radiation safety.

Methods: Data were obtained retrospectively from seven laboratories participating in Congenital Cardiac Catheterization Project on Outcomes(C3PO) collaborative. Total air KERMA, dose area product, and total fluoroscopy time were obtained for the following procedures: 1) patent ductus arteriosus(PDA) closure, 2) atrial septal defect closure, 3) pulmonary valvuloplasty, 4) aortic valvuloplasty, 5) treatment of coarctation of aorta and, 6) transcatheter pulmonary valve(TPV) placement.

Results: Median, 75th percentile, and 95th percentile values for the above radiation parameters were calculated for 2713 cases identified between January 2009 and July 2013. Radiation exposure was lowest in PDA closure and highest in TPV placement. Total fluoroscopy time was a poor marker of radiation exposure and did not correlate well with total air KERMA and dose area product.

Conclusions: This study presents first, multicenter, age stratified radiation doses for six common interventional procedures for CHD in the US. These values will serve as baseline for measuring the effectiveness of future quality improvement activities by the C3PO collaborative.