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Meeting abstract

1063 Magnetic resonance imaging in pediatric cardiac intensive care patients

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Introduction

Magnetic resonance imaging (MRI) has proven to be an important diagnostic tool in congenital heart disease. The use of MRI in critically ill children awaiting cardiac surgery or after open heart procedures has been restrictive in the past due to the challenging MRI environment which carries several inherent risks.

Purpose

We hypothesized that cardiac MRI examinations are of high diagnostic value and can be performed with low risk and without significant hemodynamic consequences in this highly selected patient group.

Methods

Retrospective analysis using electronic records of all patients submitted from our pediatric cardiac intensive care unit to our cardiac MRI programm in the last two years.

Data collected included age, diagnosis, inotropic score, urine output diuretic medication, temperature and lactate, length of MRI, adverse effects, clinical implications of MRI and length of stay in the PCICU.

Results

24 of 592 patients in the last two years were transported from our PCICU. 22 were infants (mean age 4,6 months), 2 were schoolkids, 10/24 were postoperative. Intracardiac malformations were present in 19, vascular rings causing tracheal stenosis in 3, one cardiomyopathy and one mycordial infarction due to anomalous course of the left coronary artery. Mean stay in the PCICU was 25,7 days. 8 were ventilated (mean FiO_2 0,29), 6 were on inotropic support. All nonventilated children were intubated for the MRI and extubated in the MRI-laboratory. Mean duration of MRI ("door to door-time") was 108 minutes. All except one patients were hemodynamically stabile and no increase of catecholamines was necessary during and after the scans. A 10-month old girl needed an simple dose of epinephrine because of sustained bradycardia after a breathhold-sequence. Mean body core temperature after arrival on the PCICU was 36,9°C, mean serum-lactate after the MRI was 1,2 mmol/l. Mean diuresis on the examination day was better than the day before with unchanged medication (644 ml vs. 603 ml). In 18/24 patients operative or catheterinterventional procedures were initiated after the MRI result.

Conclusion

Cardiac MRI is of high clinical value and can be performed with low risk and no negative hemodynamic effects even in pediatric cardiac intensive care patients.