

AEPC-AHA-JSPCCS Joint Symposium

AEPC-AHA-JSPCCS-TSPC Joint Symposium (I-AJS)

New applications of cardiovascular magnetic resonance in pediatric cardiology

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Fri. Jul 7, 2017 1:00 PM - 2:30 PM ROOM 3 (Exhibition and Event Hall Room 3)

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[I-AJS-01]New applications of cardiovascular magnetic resonance in pediatric cardiology

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Cardiovascular magnetic resonance (CMR) has been applied to congenital heart disease for over 30 years and has evolved to become to an integral part of the care of the patient. Recent advances have led to further applications in pediatric cardiology and new ways to diagnose and treat patients. For example, new approaches to surgical planning using computational fluid dynamics in conjunction with CMR allows for visualizing and predicting a whole range of surgical options and outcomes. Along those lines, 4-dimensional flow imaging, where a “slab” of velocities are obtained, has opened up novel ways to visualize and measure flow characteristics of the native and repaired congenital heart disease such as the Fontan pathway or the reconstructed aorta. Displacement encoding (DENSE) is a dedicated method to assess myocardial strain whereas the advent of tissue tracking can be utilized on standard cine sequences to also measure multidimensional strain. Techniques such as T1 mapping have opened up new insights into tissue characterization and the ability to predict outcome. XMR, the combination of CMR and cardiac catheterization, has been utilized to save time in the cath lab as well as radiation exposure. Finally, lymphatic imaging has allowed pediatric cardiologists to gain new insights into complications and treatment of the single ventricle. This lecture will survey a number of various new techniques in CMR which are slowly changing the field of pediatric cardiology.