

AEPC-AHA-JSPCCS Joint Symposium

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

New applications of cardiovascular magnetic resonance in pediatric cardiology

Chair:Satoshi Yasukochi(Heart Center, Nagano Children's Hospital, Japan)

Chair:Brandley S. Marino(President of VDY, AHA)

Chair:Gurleen Sharland(President of AEPC)

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

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[I-AJS-02]Hybrid cardiovascular magnetic resonance and fluoroscopic guided cardiac catheterization

○Kuberan Pushparajah (Evelina London Children's Hospital and King's College London, UK)

Cardiac catheterisation under fluoroscopic guidance is an important modality in the diagnosis and treatment of acquired and congenital heart disease. However, there is a recognised burden of the risk of radiation to patients and staff, and the cancer risk particularly in children with congenital heart disease requiring repeat investigations or interventions. MRI has the advantages of providing 3D anatomical information, cardiac function, flow, soft tissue characterisation and scar detection without the use of radiation.

MRI augmented or MRI guided catheterisation was pioneered in patients at our unit (Guy's Hospital) 15 years ago and is routinely employed for diagnostic catheterisation in congenital heart disease particularly as a validated tool in the assessment of pulmonary vascular resistance. Early studies show promise in the use of MRI guided electrophysiology studies and radiofrequency ablation where MRI tissue characterisation allows assessment of the ablation targets and effects. There are a few small case reports of early experience in MRI guided interventions for structural congenital cardiac lesions in animals and humans. However, there are still limitations to the wider adoption of these techniques, particularly with respect to suitable cardiac catheters and guidewires in the MRI environment. There are improvements in MRI sequences for rapid scanning, device visualisation, interactive visualisation platforms with integrated segmentation tools. Novel guidewires and catheters which allow passive or active tracking are being developed. There is renewed enthusiasm for adoption of these technologies which may well lead to wider use of MRI catheterisation in clinical practice.