

JSPCCS-AEPC Joint Session

📅 2026年7月10日(金) 8:30 ~ 10:00 | 🏢 第4会場 (Room 601)

[AEPCJS] JSPCCS-AEPC Joint Session (II-AEPCJS)**Optimization and transitional care of cardiac pacing and resynchronized therapy in congenital heart disease**

Chair: Nico A. Blom (Leiden University Medical Center and Amsterdam University Medical Center, The Netherlands)

Chair: Shin Ono (Kanagawa Children's Medical Center)

[II-AEPCJS-1] Cardiac resynchronization therapy for failing sub-pulmonary right ventricle

○ Jan Janoušek¹ (Children's Heart Centre, Motol and Homolka University Hospital, Prague, Czech Republic)

[II-AEPCJS-2] Challenges and Opportunities in the Modern Transition of Care in Congenital Heart Cardiology

○ Gabriele Egidy Assenza (IRCCS Azienda Ospedaliero-Universitaria di Bologna, Italy)

[II-AEPCJS-3] Lifelong Management of CIEDs in Congenital Heart Disease: Lead Strategy and Device Planning

○ Yoshiaki Kato, Tohru Iwasa, Kazuto Fujimoto, Takako Toda, Yuuki Ito, Yoshihito Morimoto, Yuri Murayama, Naoki Iida, Hideo Ohuchi, Kenichi Kurosaki (National Cerebral and Cardiovascular Center)

[II-AEPCJS-4] Cardiac Pacing for Hemodynamic Optimization in Congenital Heart disease

○ Aya Miyazaki (Department of Pediatric Cardiology, Seirei Hamamatsu General Hospital)

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[II-AEPCJS-1] Cardiac resynchronization therapy for failing sub-pulmonary right ventricle

○Jan Janoušek¹ (Children's Heart Centre, Motol and Homolka University Hospital, Prague, Czech Republic)

キーワード：Right ventricle、right bundle branch block、cardiac resynchronization therapy

Electromechanical dyssynchrony leading to contractile ventricular discoordination is a recognized reason for heart failure treatable by cardiac resynchronization therapy (CRT). Patients after surgical repair of congenital heart disease frequently suffer from right ventricular (RV) dysfunction associated with right bundle branch block (RBBB) and related electromechanical dyssynchrony. In the 2023 HRS guidelines on physiologic pacing for avoidance and mitigation of heart failure sub-pulmonary RV dysfunction with RBBB is accepted as a class IIb indication for CRT by RV free wall fusion pacing to improve RV function.

Recent advances in both non-invasive electrical activation imaging by ultra-high frequency ECG and mechanical imaging by speckle tracking echocardiography have enabled to study RV electromechanical interaction in RBBB and characterize the substrate for RV CRT in patients after repair of tetralogy of Fallot. Further studies described both the effects of RV CRT in limited cohorts of congenital heart disease patients acknowledging its independent role in the treatment of RV dysfunction beyond correction of hemodynamic residua. Furthermore, the use of computational modelling enabled creation of digital patient twins to predict the effects of RV CRT at various degrees of residual pulmonary stenosis and regurgitation pathing the way to individualized precise medicine.

RV CRT is evolving to a complimentary therapy for sub-pulmonary RV dysfunction with precise indications yet to be established and long-term impact to be evaluated.

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[II-AEPCJS-2] Challenges and Opportunities in the Modern Transition of Care in Congenital Heart Cardiology

○Gabriele Egidy Assenza (IRCCS Azienda Ospedaliero-Universitaria di Bologna, Italy)

Advances in pediatric cardiology and cardiac surgery have dramatically improved survival among patients with congenital heart disease (CHD), leading to a rapidly expanding adult CHD population with complex lifelong healthcare needs. Transition of care from pediatric to adult-centered services has therefore become a critical component of modern congenital cardiology. However, this process remains challenging due to heterogeneity of disease complexity, psychosocial vulnerability, limited disease awareness, treatment adherence issues, and fragmentation of multidisciplinary care pathways. Effective transition extends beyond the transfer of medical information and requires structured educational, psychological, and organizational strategies aimed at promoting patient autonomy and long-term engagement with specialized care. Modern transition programs also offer important opportunities to optimize arrhythmia surveillance, device follow-up, heart failure management, reproductive counseling, and lifestyle interventions. Multidisciplinary collaboration between pediatric and adult congenital cardiologists, electrophysiologists, imaging specialists, nurses, psychologists, and genetic counselors is essential to improve continuity of care and long-term outcomes in this growing population.

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[II-AEPCJS-3] Lifelong Management of CIEDs in Congenital Heart Disease: Lead Strategy and Device Planning

○Yoshiaki Kato, Tohru Iwasa, Kazuto Fujimoto, Takako Toda, Yuuki Ito, Yoshihito Morimoto, Yuri Murayama, Naoki Iida, Hideo Ohuchi, Kenichi Kurosaki (National Cerebral and Cardiovascular Center)

キーワード：cardiac implantable electronic devices、congenital heart disease、lifelong management

Cardiac implantable electronic devices (CIEDs) play an increasing role in the management of congenital heart disease (CHD), but lifelong device management remains challenging. Lead and generator selection must account not only for current anatomy and arrhythmia substrate, but also for future venous access, surgical options, and the likelihood of repeated reintervention. Management strategy must therefore evolve over time, particularly when deciding whether to retain epicardial systems or when transvenous implantation becomes feasible. In patients with limited venous access or complex postsurgical anatomy, epicardial leads may remain the most practical long-term option, making long-term device planning a central issue. Although new device technologies may broaden treatment options, their impact on lifelong management remains uncertain because use is constrained by anatomical heterogeneity, durability and extraction issues, and the need for center-specific expertise. In Japan, beyond these shared challenges, strengthening the transition from pediatric to adult care and sustaining multidisciplinary collaboration across pediatric cardiology, ACHD, electrophysiology, and congenital cardiac surgery remain important issues. This presentation outlines a practical framework for lifelong CIED management in CHD, emphasizing lead strategy, long-term device planning, and continuity of care in Japan.

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[II-AEPCJS-4] Cardiac Pacing for Hemodynamic Optimization in Congenital Heart disease

○Aya Miyazaki (Department of Pediatric Cardiology, Seirei Hamamatsu General Hospital)

キーワード：Pacemaker、Congenital Heart Disease、Hemodynamics

Pacemaker setting can positively or negatively affect hemodynamics. On the other hand, in the patient with congenital heart disease (CHD), their underlying disease and hemodynamic are widely heterogeneous. Therefore optimal device programming should be individualized. Two representative CHD conditions are discussed.

I. Pacing rate in diseased subpulmonary RV

In patients with a diseased subpulmonary RV and preserved LV function, LV performance increases with increasing HR through the force frequency relationship. This may enhance RV performance via ventriculo-ventricular interaction and a reduction in RV afterload. As a result, RV output improves, leading to an increase in LV preload. According to the Frank-Starling law, LV performance further increases. Overall, this may result in favorable hemodynamics. Therefore, the appropriate HR in patients with a failing RV and preserved LV function may be higher than that in those with LV failure. In these patients with sinus node dysfunction, early pacemaker implantation and a higher pacing rate are warranted.

II. Ventricular pacing in systemic RV

Ventricular pacing itself is not always harmful in systemic RV. AV sequential pacing may improve hemodynamics by correcting AV dyssynchrony. However, LV pacing in systemic RV is known to deteriorate hemodynamic in the long term.

Because RV anatomy differs from the LV, the pattern of RV dyssynchrony also differs from that of the LV. Careful assessment of RV dyssynchrony caused by ventricular pacing is required.

When dyssynchrony is present, early indication for physiological pacing is crucial.