会長企画シンポジウム

2025年7月11日(金) 16:45 ~ 18:15 第1会場（文化会館棟 1F 大ホール）

会長企画シンポジウム3（II-PSY3）
児童生徒の心電図検診の国際的な状況とデジタル化のインパクト

座長：三谷 義英（三重大学医学部附属病院 周産母子センター）
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[II-PSY3-4] Artificial Intelligence in Pediatric ECG: Clinical Applications and Opportunities for School-Based Screening

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キーワード：Artificial Intelligence、Electrocardiogram、pediatrics

Cardiovascular diseases in children are rare but can lead to serious outcomes such as increased morbidity and mortality from heart failure or even sudden cardiac death if not detected in a timely manner. Therefore, early detection and appropriate intervention are essential. Electrocardiography (ECG) is a non-invasive, simple, rapid, and cost-effective tool that has traditionally been used for the initial assessment of cardiac conditions, preoperative evaluations, and routine health screenings.

The integration of artificial intelligence (AI) into ECG analysis has enabled the identification of subtle patterns and abnormalities that may be overlooked by human interpretation. AI-driven ECG technology enhances diagnostic accuracy and speed, offering a promising tool for disease detection, monitoring, and risk prediction. In adults, AI-based ECG has already demonstrated utility as a diagnostic and prognostic tool in conditions such as atrial fibrillation, heart failure, myocardial infarction, valvular disease, and even anemia, with some applications already commercialized.

In the pediatric population, AI-ECG studies are emerging, showing potential for detecting congenital heart disease, assessing ventricular function, and predicting mortality. However, this field remains in its early stages, with a need for large-scale datasets, model development, real-world implementation, and clinical validation.

This lecture will provide an overview of pediatric cardiac disease epidemiology based on a Korean multicenter cohort and introduce ongoing AI-ECG research initiatives. We will also explore the potential role and future direction of AI-based ECG in school-based cardiovascular screening programs.