会長企画シンポジウム

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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

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[II-PSY3-3] Enhancing ECG Screening for School-Age Youth in Taiwan: Present Practices and Future Perspectives

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キーワード：Crowdsourcing、Electrocardiography、Heart sounds

Background/Purpose
School-based cardiac screening is useful for identifying children and adolescents with a high risk of sudden cardiac death. However, because of challenges associated with cost, distance, and human resources, cardiac screening is not widely implemented, especially in rural areas with limited medical resources. This study aims to establish a cloud-based system suitable for mass cardiac screening of schoolchildren in rural areas with limited medical resources.
Methods
Students from three schools were included. They or their guardians completed a simple questionnaire, administered in paper or electronic form. Heart sounds were recorded using an electronic stethoscope. Twelve-lead electrocardiograms (ECGs) were recorded and digitalized. The signals were transmitted through Bluetooth to a tablet computer and then uploaded to a cloud server over Wi-Fi. Crowdsourced pediatric cardiologists reviewed those data from a web-based platform and provided remote consultation. In cases in which abnormal heart sounds or ECGs were noted, the students were referred to the hospital for further evaluation.
Results
A total of 1004 students were enrolled in this study. Of the 138 students referred, 62 were diagnosed as having an abnormal heart condition and most had previously been undiagnosed. The interrater agreeability was high.
Conclusion
An innovative strategy combining a cloud-based cardiac screening system with remote consultation by crowdsourced experts was established. This system allows pediatric cardiologists to provide consultation and make reliable diagnoses. Combined with crowdsourcing, the system constitutes a viable approach for mass cardiac screening in children and adolescents living in rural areas with insufficient medical resources.