14th World Heart Congress

September 22-23, 2025

Webinar

Elena Marino, J Coron Heart Dis 2025, Volume 09

AI-enhanced echocardiography: Improving accuracy in structural heart disease

Elena Marino
Sapienza University of Rome, Italy

Artificial intelligence (AI) is transforming cardiac imaging, particularly echocardiography, by enhancing diagnostic precision and reducing inter-observer variability. This presentation explores AI-driven algorithms capable of automating cardiac measurements, detecting subtle abnormalities, and assisting clinicians in real-time decision-making. By analyzing high-resolution echo datasets, AI tools can accurately quantify ejection fraction, identify wall motion abnormalities, and recognize early-stage valvular diseases. The session will review landmark studies showing improvements in diagnostic consistency and workflow efficiency through machine learning integration. Focus will be placed on automated strain imaging, AI-supported congenital heart disease assessment, and predictive modeling for heart failure progression. Additionally, the talk examines the role of cloud-based platforms in facilitating remote interpretation and global collaboration, particularly for underserved regions lacking imaging specialists.

Challenges such as data privacy, algorithm transparency, and the need for robust validation across diverse populations will be discussed. The presentation concludes by addressing future perspectives, including hybrid AI-clinician workflows and the potential for personalized cardiac care based on imaging-driven predictive analytics.

Biography

Elena Marino is a cardiovascular imaging specialist and Associate Professor at Sapienza University of Rome. With more than 14 years of experience in echocardiography, she has led several European research initiatives integrating AI into clinical cardiology. Her work focuses on machine learning applications for early cardiac disease detection and workflow optimization. Dr. Marino is widely published in cardiology journals and frequently presents at global cardiovascular and digital-health conferences.

Received: 16 August, 2025; **Accepted**: 19 August, 2025; **Published**: November 28, 2025