Virtual Electrophysiologic Testing For Cardiac Risk Stratification

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Technology description

A novel technology that simulates 3D electrical stimulation of the patient heart in order to identify the risk of cardiac arrhythmias

Northwestern researchers developed a novel technology that simulates electrical stimulation of the patient heart in order to identify the risk of cardiac arrhythmias. Depending on whether the heart tissue is scarred, impaired or normal, it allocates electrical properties and then determines the electrical conductivity associated with the image data. Once it identifies scar tissue as hyper-enhanced areas in medical images with variable luminance thresholds and categorizes partially-viable myocardium as distinct from non-viable scar, the technology can create a 3D model of the patient's heart using imaging data. The system capitalizes on the fact that the electrical properties of scar tissue are different from those of normal tissue, such that the stimulation processor can actually provide virtual electrical stimulation to the patient heart and then identify the relative risk of heart impairment.

Application area

· Electrophysiologic Testing

Advantages

· Creation of 3D model using imaging data

Institution

Northwestern University

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