

Noninvasive Electrocardiographic Imaging (ECGI) of Cardiac Electrophysiology and Arrhythmias: Example Applications in Humans.

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A noninvasive imaging modality for cardiac electrophysiology and arrhythmias is not yet available for clinical application. Such modality could be used to identify patients at risk, provide accurate diagnosis and guide therapy. Standard noninvasive diagnostic techniques, such as the electrocardiogram (ECG) provide only low-resolution reflection of cardiac electrical activity on the body surface. In my presentation, I will describe the application in humans of a new imaging modality called *Electrocardiographic Imaging* (ECGI) that noninvasively images cardiac electrical activity on the heart's epicardial surface. In ECGI, a multi-electrode vest (or strips) records 250 body-surface electrocardiograms; then, using geometrical information from a CT scan and an inverse solution to Laplace equation, electrical potentials, electrograms, activation sequences (isochrones) and repolarization patterns are reconstructed on the heart's surface. I will show examples of imaged atrial and ventricular activation and ventricular repolarization in the normal heart and during cardiac arrhythmias.

References

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