MEDICAL BREAKTHROUGHS
RESEARCH SUMMARY

TOPIC: 3D MAPPING TO FIND AND TREAT HEART ARRYTHMIAS
REPORT: **MB #5092**

BACKGROUND: A heart arrhythmia is an irregular heartbeat. Heart rhythm problems occur when the electrical signals that coordinate the heart's beats don't work properly. The faulty signaling causes the heart to beat too fast (tachycardia), too slow (bradycardia) or irregularly. Approximately one in 18 people, or 5 percent of the U.S. population has an arrhythmia. A recent study has also suggested that one in four adult Americans over the age of 40 could develop an irregular heartbeat.
(Sources: https://www.mayoclinic.org/diseases-conditions/heart-arrhythmia/symptoms-causes/syc-20350668
https://www.scripps.org/sparkle-assets/documents/heart_rhythm_facts.pdf

DIAGNOSING: Arrhythmias can produce a broad range of symptoms and results. Your experience with arrhythmia may also differ depending on the type. For instance, a single premature beat may be felt as a “palpitation” or a “skipped beat.” Premature beats that occur often or in rapid succession may increase awareness of heart palpitations or a “fluttering” sensation in the chest or neck. When arrhythmias (including AFib) last long enough to affect how well the heart works, more serious symptoms may develop fatigue or weakness, dizziness or lightheadedness, rapid heartbeat or pounding in the chest, shortness of breath and anxiety, and chest pain or pressure.
(Source: https://www.heart.org/en/health-topics/arrhythmia/symptoms-diagnosis--monitoring-of-arrhythmia)

NEW TECHNOLOGY: New technologies and therapies for treatment of cardiac arrhythmia include ablation catheters designed to destroy targeted tissue with improved precision and safety, robotic systems to guide accurate catheter movements, electrical mapping systems, and improved imaging to complement such systems. San Diego, California-based Vektor Medical is looking to offer an alternative. It announced last week that University of California, San Diego Health is the first hospital to use its FDA cleared vMap technology for mapping the heart during cardiac ablation procedures. Through ablation, heat or cold therapy is applied through a catheter to block irregular electric signals with the goal to restore a typical heartbeat. Vektor Medical claims that its vMap technology is non-invasive, fast, and less labor intensive than current catheter mapping methods. The technology is able to identify potential arrhythmia sources anywhere in the heart using only the data from an ECG to do so.
(Sources: https://pubmed.ncbi.nlm.nih.gov/21135812/#:~:text=New%20technologies%20and%20therapies%20for%20treatment%20of%20cardiac%20arrhythmia%20include,imaging%20to%20complement%20such%20systems.
https://medcitynews.com/2022/02/new-technology-can-quickly-non-invasively-identify-possible-arrhythmia-source-in-heart/)

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