Uploaded to the VFC Website

2018

This Document has been provided to you courtesy of Veterans-For-Change!

Feel free to pass to any veteran who might be able to use this information!

For thousands more files like this and hundreds of links to useful information, and hundreds of "Frequently Asked Questions, please go to:

Veterans-For-Change

If Veterans don't help Veterans, who will?

Note: VFC is not liable for source information in this document, it is merely provided as a courtesy to our members & subscribers.

Researchers develop more efficient system for detecting and treating atrial fibrillation

November 18, 2016

Researchers at the Polytechnic University of Valencia and Hospital Gregorio Marañón in Madrid have partnered to develop a more efficient system for detecting and treating atrial fibrillation that will be in hospitals soon.

Atrial fibrillation is the most common serious abnormal heart rhythm or 'arrhythmia' and is characterised by rapid and irregular beating. It causes the patient to be unable to live a normal life, finding such as climbing stairs or taking a walk too strenuous, and significantly reduces life expectancy. Curing this type of arrhythmia is complicated, usually requiring surgical intervention in the form of catheters inserted into the heart to record the electrical activity in the atria and identify the problem region and potential target for subsequent surgical treatment. However, even using this method it is difficult to identify the exact source of the arrhythmia and in around 40% of cases the surgery is ineffective and must be repeated.

Now though, thanks to over a decade of basic research, researchers from the Universitat Politècnica de València (UPV) and Hospital Gregorio Marañón in Madrid have developed a new system that geolocates cardiac arrhythmias in real time, guiding physicians during cardiac ablation, and reducing the cost and duration and increasing the effectiveness of surgical intervention.

This new technology is able to generate a map of a patient's cardiac activity in both atria in real time from the combination of surface and non-invasive intracardiac recordings. "It is a very useful tool for physicians during cardiac ablation therapy. It increases the efficiency of the operation, reduces surgery times and, most importantly, enables better identification of which patients require and will benefit from surgery", María Guillem, researcher at the UPV's ITACA research institute, tells us.

Currently, both the detection and treatment of arrhythmias are carried out using invasive cardiac catheterization processes. These processes, although they allow cardiac activity to be recorded and, where the arrhythmia follows a consistent pattern, a target for ablation to be localised, they are limited.

Meanwhile, another technique known as non-invasive reconstruction of cardiac activity is receiving much attention as a means of improving the effectiveness of the detection and treatment of atrial fibrillation. However, the high cost and complexity of this method means it is not being incorporated into clinical practice. Researcher Miguel Rodrigo at ITACA-UPV explains that this is where the new system comes in: "[it] enables mapping in real time, allowing physicians to identify patterns in irregular cardiac activity -which is what occurs in atrial fibrillation-, without the need for pre-op image-taking like MRIs and CT scans which make it more expensive to extend treatment to more patients."

The main differentiating features of the device, patented and developed by the UPV and Hospital Gregorio Marañón, is the way in which the 3-D image of the patient's body is obtained and the simultaneous use of invasive and non-invasive information to reliably reconstruct electrical activity in the atria.

"Our team is the first to allow cardiac electrophysiologic patterns to be characterised using the combined analysis of information obtained by surface mapping of heart electrical activity -on the patient's torso- and the information provided by intracavity catheters", adds Dr. Andreu M. Climent, researcher at the Bioartificial Organs Laboratory at Hospital Gregorio Marañón.

In hospitals soon!

The patent has led to the creation of Corify, S.L, which won first runner-up in the Healthstart 2016 competition run by the MadrI+D Knowledge Foundation (Madri+d).

"The Corify project will make it possible for this technique to be used on real patients within 12 months. We already have a prototype and are working on pre-clinical and clinical trials prior to its commercialisation", concludes Alejandro Liberos, researcher at Hospital Gregorio Marañón with a PhD from the UPV and charged with bringing this publicly-funded research to the benefit of society. "Our technology can compete with that of the sector's main multinational companies", adds Climent.

Source:

Asociación RUVID
