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Rapid Detection 'hidden' heart problems in COVID19 patients

ECG-Excellence launches 5-minute COVID19 Cardiac triage SAAS service at CES 2021

Nieuwerbrug, The Netherlands, January 11, 2021 – Today ECG-Excellence, the driving force behind innovative electrocardiogram diagnostics, introduces a new remote ECG data interpretation tool which supports physicians in identifying 'hidden' (underlying) abnormal Electrocardiogram patterns in COVID19 patients. This new clinical decision support tool is now available through a web-based service. To unlock the detailed difference between a normal and an abnormal ECG, only an upload of a patients ECG data is needed to get direct feedback.

Knowing if a hospitalized COVID19 patient has a new or underlying cardiac problem is of utmost importance for monitoring & treatment. But accurate ECG interpretation by physicians on average only occurs in 54% of cases, because the ECG data lacks stability and standardisation. And alternative technologies such as MRI, CT and Ultrasound require staff time (for recording and equipment cleaning) and do not provide insight into the electrical activation process in the heart. The patient's heart may be impacted by the virus or already show a growing (and yet undetected) disorder. The software-based CineECG solution of ECG-Excellence clearly indicates if there's a normal or an abnormal electrical activation pattern. Digital twin technology supported by artificial intelligence-based algorithms show the physician the 'hidden' reality of the heart performance.

Between 400.000 and 500.000 people are currently worldwide hospitalized with COVID19 and, despite the vaccines, more are expected. According to CDC, people with underlying heart conditions are at increased risk of severe illness from the virus.

The CineECG technology has been developed, tested and validated in Europe by ECG Excellence in collaboration with the cardiologists of the Dutch Cardiovascular Alliance, the Capacity-Covid registry (a program which collects data from thousands of COVID19 patients), Utrecht University Medical Centre and the team of Prof. Carlo Pappone at the IRCCS Policlinico San Donato Milanese.

The CineECG COVID19 triage service is made available through the collaboration between ECG Excellence and AMPS-LLC.com and its related company CardioCalm.com telecardio services. AMPS-llc is a global market leader in remote ECG interpretation services.

ECG Excellence: changing the landscape of non-invasive cardiac diagnosis (again)
ECG Excellence exists to support patients and medical professionals in providing better, earlier and lower costs non-invasive cardiac diagnostics enabling state of the art disease detection & treatment options through 12 lead electrocardiogram (ECG/EKG) data enhancement
The solutions provided by ECG-Excellence support physicians in diagnostic and prognostic processes. ECG-Excellence technologies are complementary to standard 12 lead ECG recording devices and converts the ECG output into always accurate, consistent, reproducible and comparable morphology (wave patterns), without losing the benefits of the proven non-invasive, low cost, painless, rapid result ECG technology.

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The founders of ECG Excellence are thought leaders in the domain of inverse cardiac modelling and have a track record in bringing new cardiac solutions to the market.

ECG-Excellence is a digital exhibitor at CES 2021 and part of the Dutch cohort of leading edge technology firms. You can find our booth via https://digital.ces.tech/exhibitor/da50eff0-f3e8-4867-abf7-ae391983a9ba

The following images provide further explanation of the added value of CineECG:
High Resolution Images and short video showing CineECG in action can be downloaded from dropbox address https://www.dropbox.com/sh/lujj4wsroici9tg/AAArC3GuCafgVoZDN7Yl6brda?dl=0

Figure 1
Standard display of 12 channel ECG data. Interpretation is the physicians challenge! Each chart reflects a specific segment of the heart. Each chart is influenced by body built, heart position within the body and the accuracy of electrode placement. The base line is not secured and therefore the physician can not evaluate the accurate direction of the electrical activation flow in the heart.
Assessment of heart rhythm is OK and does not require waveform analysis. Electrical conduction disorders are reflected in the waveforms and 'hidden' in the relaxation phase of the activation cycle.

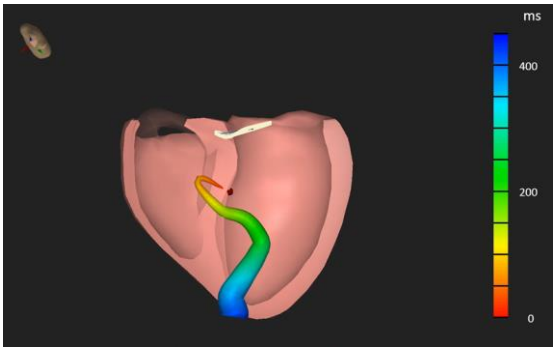

Figure 2
CineECG representation of a normal, healthy heart. Only the large heart chambers are shown in this 3D view. The ECG data is used to make a digital reconstruction of the electrical activation. The CineECG display links the measured electrical signals to the anatomy of the heart. The digital reconstruction uses underlying models about the electrode positions and the rotation of the heart in the body. The picture shows the bundled electrical activation and relaxation flowing through the cardiac anatomy.

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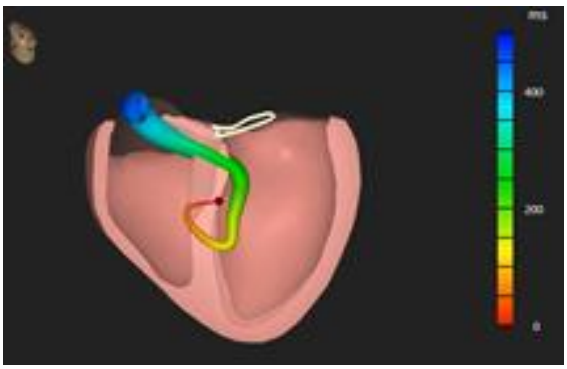

Figure 3
CineECG representation of a COVID19 patient with Myocarditis. In the direction of the activation, it is visible that it shows a different pattern compared to the normal activation. This image becomes visible on the basis of a regular ECG recording of a few seconds with a standard ECG machine. This is a clear signal to the physician that this COVID19 patient should be monitored and may require additional therapy.

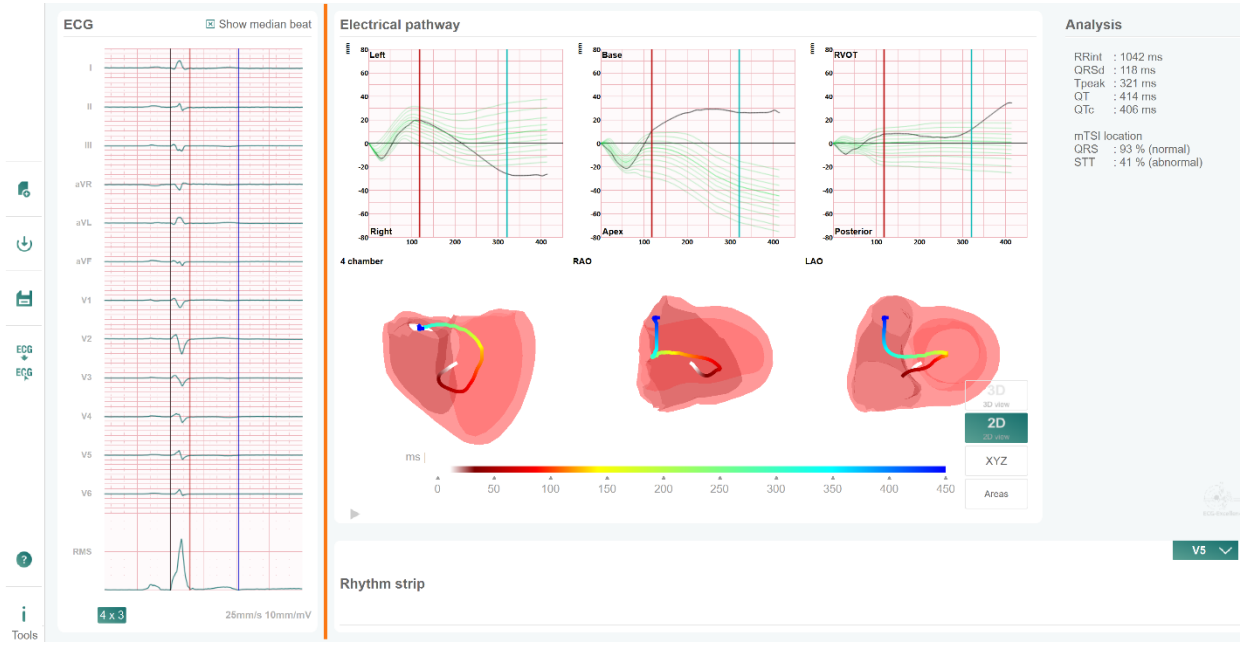

Figure 4 CineECG User interface representation in 2D presenting a comparison between the normal electrical pathway in the heart and the measured result. The 3 graphs each represent a different view (top to bottom) I (left to right) and (back to front). In this case a COVID19 patients shows a disorder in the T wave region (end of the activation cycle), a situation which is not detectable from a regular ECG graph presentation.

CineECG is a development of ECG Excellence and patented.
CineECG has recently been used for the detection of Brugada Syndrome.Publication on this technology has appeared in the September 2020 issue of Circulation: Arrhythmia & Electrophysiology

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Notes To Editors

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