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HealthTech Innovation Conference

Zabrze, 9 – 10th October 2023

Mirella URZENICZOK[1,3], Ilona KARPIEL[1], Dariusz KOMOROWSKI[2]

[1] Łukasiewicz Research Network – Krakow Institute of Technology, The Centre for Biomedical Engineering, Zabrze, Poland
[2] Silesian University of Technology, Faculty of Biomedical Engineering, Department of Biosensors and Processing of Biomedical Signals, Zabrze
[3]Silesian University of Technology, PhD School, Gliwice, Poland

IS IMPEDANCE CARDIOGRAPHY A BETTER TOOL THAN ECG IN SUPPORTING THE DIAGNOSIS OF PATIENTS WITH HEART FAILURE?

Keywords: impedance cardiography, ECG, heart failure

Heart failure (HF) is a disease of a progressive nature, with periods of exacerbations. In Poland, there are about 1.68 million people under the care of doctors with diagnosed HF (data from year 2018). In this group, almost half of the patients (about 48.5%) have been hospitalized at least once. Hospitalizations related to exacerbations of heart failure, significantly burden the prognosis of patients. With one hospitalization, the survival rate is 66.4%, and with four or more it is only 43.9%.

The usual tool used in the prognosis of heart failure is electrocardiography (ECG). In diagnosing patients with this condition, one looks for abnormalities in the electrocardiogram, such as left ventricular hypertrophy, evidence of previous myocardial infarction or arrhythmias. However, abnormalities on ECG may be associated with a diagnosis other than HF.

The purpose of this paper is to present a novel approach to support the diagnosis of heart failure based on the evaluation of hemodynamic parameters such as thoracic fluid content and ventricular ejection time using impedance cardiography (ICG) in association with ECG, which is the standard for diagnosing this disease.

The main aspects will be presented, especially the advantages, ways of performing and analyzing measurements, based on the combination of electrocardiographic monitoring and non-invasive evaluation of hemodynamic parameters, which introduce a paradigm shift in the field of heart failure treatment. Integrating these tools will enable healthcare providers to make more informed clinical decisions, reducing the number of potential rehospitalizations and resulting health costs.

The integration of ECG and ICG measurements over the past 5 years will be discussed, representing a major step forward in the diagnosis and monitoring of heart failure patients. This combination contributes to improve the diagnostic accuracy, and is the key to increase survival rates, through long-term, continuous monitoring of patients with HF, which in the field of cardiac monitoring and evaluation of hemodynamic parameters is extremely important.