

Abstract – Travail de diplôme

Measuring the diagnostic accuracy of Cardiac Electrical Biomarkers in prehospital settings

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Introduction

Cardiac Electrical Biomarkers (CEB) are new markers enabling the detection of acute myocardial injuries through quantification of multipolar cardiac electrical activity.

Research Question and Hypotheses

The research question is as follows: Does measuring CEB in prehospital settings for adult patients with symptomatic acute coronary syndrome, treated within the ambulance intervention area of Bienne, allow for accurate detection of myocardial infarctions ?

Null hypothesis: There is no statistically significant difference in CEB values between patients with and without myocardial infarction (MI).

Alternative hypothesis: There is a statistically significant difference in CEB values between patients with and without myocardial infarction (MI).

Methodology

This prospective observational study is based on data collection conducted within ARB AG. A protocol for measuring Cardiac Electrical Biomarkers was implemented in the ambulance service, followed by data collection from March 1st to September 30th, 2023. The study targets patients with symptoms of acute coronary syndrome, comparing their CEB results, obtained in prehospital settings, with the diagnoses made by the emergency department of Bienne hospital center.

Results

The results of this study concluded that elevated Cardiac Electrical Biomarkers (CEBs) do not exhibit a highly significant correlation with a diagnosis of myocardial infarction. However, there is a strong trend suggesting a correlation between the CEB value and the diagnosis, especially when considering outliers.

Discussion & conclusion

The Cardiac Electrical Biomarkers stand out as a potential complementary tool in the detection of myocardial infarction in prehospital settings. The results emphasize a more pronounced effectiveness in excluding myocardial infarction than in confirming its presence.

Keywords: Cardiac Electrical Biomarker, myocardial infarction, prehospital, diagnosis

Bern, 10th of December 2023