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**Wpływ użytkowania aplikacji mobilnej afterAMI  
na kontrolę czynników ryzyka chorób sercowo-naczyniowych  
u pacjentów po zawale serca**

**Rozprawa na stopień doktora nauk medycznych i nauk o zdrowiu  
w dyscyplinie nauki medyczne**

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Obrona rozprawy doktorskiej przed Radą Dyscypliny Nauk Medycznych  
Warszawskiego Uniwersytetu Medycznego

Warszawa 2023 r.

## Streszczenie w języku angielskim

Treatment of acute myocardial infarction has been the subject of studies over the past years. However, the initial months after myocardial infarction are crucial from the perspective of the patient's prognosis. It is extremely important to take care of all cardiovascular risk factors and undergo full rehabilitation program. Cardiac rehabilitation is a complex program which aims to better control a patient's cardiovascular risk factors. It can be supported by mobile applications. Telemedical solutions are becoming more and more relevant in everyday practice. We described a protocol and conducted a study evaluating the use of mobile application 'afterAMI' in patients after myocardial infarction. The app offers educational mode, calendar, vital signs diary, medication reminders, medical history card and healthcare professional contact panel. It offers several solutions, which individually proved to be effective and improve patient's prognosis. Despite general promising results from previous studies regarding telemedical tools, there is paucity of evidence when it comes to prospective randomized trials. Our aim was to perform a comprehensive evaluation of a newly developed mobile application in the clinical setting with special regards to rehospitalisations, urgent outpatient visits and cardiovascular risk factors control.

100 patients with myocardial infarction were recruited on admission to the Department of Cardiology at Medical University of Warsaw. Patients were randomized into group with an access to afterAMI app or to standard cardiac rehabilitation. Cardiovascular risk factors were analyzed along with the number of rehospitalizations and patients' knowledge regarding cardiovascular risk factors. The primary study endpoint were rehospitalisations and/or urgent outpatient visits combined assessed after 6 months from randomization. In this prospective, open-label, randomized, single-center study, all 100 patients were observed for 6 months after discharge from the hospital. Endpoints were assessed during control visits 1- and 6-months after inclusion into the study.

The patients' median age was 61 years and 65% of the subjects were male. The differences in the baseline population characteristics were described in detail below. After 30-days there were no differences in cardiovascular risk factor control between the study groups apart from LDL cholesterol levels, which were lower in the "afterAMI" group ( $p < 0.001$ ), despite no differences being found at the beginning of the study. Similarly, regarding NT-

proBNP level patients in the mobile app group had significantly lower values when compared to control group ( $p=0.02$ ), despite a lack of significant differences at randomization.

This study failed to limit the number of primary endpoint events (8% with app vs. 27% without app;  $p=0.064$ ). However, patients in the interventional group had lower NT-proBNP levels ( $p=0.02$ ) and better knowledge regarding cardiovascular disease risk factors ( $p<0.001$ ), despite no differences at baseline.

However, longer follow-up is required to establish prognosis in this population. Cardiac rehabilitation process enhancements are required to improve patients' prognosis. The evidence regarding the use of the mobile application in the described group of patients is limited and usually covers a small number of participants. This project is an example of a telemedical solution application embracing everyday clinical practices, conforming with multiple international cardiac societies' guidelines.