

MODELING OF THE MYOCARDIAL AREA AT RISK OF NECROSIS IN INFARCTION PATIENTS

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- **ABSTRACT:** *The Acute Myocardial Infarction (AMI) consists of myocardial necrosis due to ischemia. This pathology may be considered a major public health issue, leading to the death of thousands of patients worldwide every year. Early and accurate estimation of the size of the area at risk of necrosis (ARN) in AMI is essential for establishing an effective treatment for AMI. The main tool for the diagnosis of AMI is the electrocardiogram (ECG). However, although the ECG is efficient for the diagnosis of AMI, it can neither provide accurate information about the AMI severity, nor estimate the myocardial ARN. This paper is devoted to propose statistical models in order to estimate the ARN, based on ECG variables, age and sex of the patient. Our models have been tested with data arising from clinical studies conducted at the University Hospital, Aarhus, Denmark. Results point out that these models are quite efficient in estimating the ARN for both anterior AMI, as well as for inferior AMI. Moreover, results are better than those attained by the estimation based on the Aldrich score, which also employs information from ECG, and that has been used in the cardiological literature since 1988.*
- **KEYWORDS:** *Model for proportion; beta regression model; quasi-likelihood, generalized linear models, myocardial infarction; Aldrich score.*

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