Applying the Regression Technique for Prediction of the Acute Heart Attack

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Abstract : Myocardial infarction is one of the leading causes of death in the world. Some of these deaths occur even before the patient reaches the hospital. Myocardial infarction occurs as a result of impaired blood supply. Because the most of these deaths are due to coronary artery disease, hence the awareness of the warning signs of a heart attack is essential. Some heart attacks are sudden and intense, but most of them start slowly, with mild pain or discomfort, then early detection and successful treatment of these symptoms is vital to save them. Therefore, importance and usefulness of a system designing to assist physicians in the early diagnosis of the acute heart attacks is obvious. The purpose of this study is to determine how well a predictive model would perform based on the only patient-reportable clinical history factors, without using diagnostic tests or physical exams. This type of the prediction model might have application outside of the hospital setting to give accurate advice to patients to influence them to seek care in appropriate situations. For this purpose, the data were collected on 711 heart patients in Iran hospitals. 28 attributes of clinical factors can be reported by patients; were studied. Three logistic regression models were made on the basis of the 28 features to predict the risk of heart attacks. The best logistic regression model in terms of performance had a C-index of 0.955 and with an accuracy of 94.9%. The variables, severe chest pain, back pain, cold sweats, shortness of breath, nausea, and vomiting were selected as the main features.