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Конференція внесена до Реєстру заходів безперервного професійного розвитку, які проводитимуться у 2023 році №5500074

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relationship of blood lipid and D-dimer. It was found that total-cholesterol and HDL-cholesterol were not significantly correlated with D-dimer, on the contrary, LDL-cholesterol showed an independent positive association with D-dimer.

Conclusion. Clinicians should consider these peculiarities when they weigh the usefulness of D-dimer testing for patients with suspected PE.The major advantage of the D-dimer test is the excellentNPV in the appropriate clinical setting. However, since the positive predictive value of the test is low, positive results cannot be used alone in the diagnosis of DVT/PE.

Hovornyan A. V.

A MODEL USING ARTIFICIAL INTELLIGENCE TO PREDICT 12-MONTH MORTALITY IN MYOCARDIAL INFARCTION PATIENTS

Department of Propaedeutic of Internal Diseases
Bukovinian state medical university

Introduction. The leading causes of death and disability worldwide – affecting around 126 million people – are ischemic heart disease and acute myocardial infarction (AMI). Death results from AMI in about 30% of all cases. Depending on the source, 8% to 20% of AMI patients pass away within a year of the event, and every second patient requires rehospitalization. In order to manage and treat patients following an AMI, it is essential to evaluate the risk and forecast outcomes at the initial hospital admission. Innovative approaches, like artificial intelligence (AI) and deep learning (DL) methodologies, have the ability to give an accurate risk assessment and share decision-making in patients who experienced AMI because conventional risk rating scales and methods have several limitations.

The aim of the study. To create and verify a deep learning-based risk stratification model that can predict patients with AMI's 12-month mortality.

Material and methods. The study included a cohort of 250 AMI patients with Killip classes I–IV. The data, which comprised anamnesis as well as the outcomes of the physical and laboratory-instrumental examinations, was gathered on the admission day and a year following the occurrence (72 values). The validation cohort, which included 35 patients, and the derivation cohort, which included 215 people, were split up at random from the entire patient load. Our model, a convolutional neural network (CNN) with one input layer, four hidden layers, and one output layer made up of neurons with a sigmoid activation function, was developed in GoogleColab using the Python programming language. MaxAbsScaler and Adam were employed for data normalization and optimization, respectively. Additionally, we only evaluated the performance of the models for the validation cohort, which was not used for model development, and calculated the GRACE risk score.

Results. We developed our DL-based model using the derivation data during the 30 cycles of work, receiving the maximum value of training accuracy of 96.7%. The mortality risk, calculated by our model for the validation group was compared with real 12-months mortality, and the CNN “lied” only 2 times. The test of the validation cohort showed such results of our DL-based model: 94% - accuracy, 71% - sensitivity, 100% - specificity, 100% - positive, and 93% - negative prognostic value. These results significantly outperformed the GRACE scale, which showed 63%, 71%, 54%, 26%, and 94% respectively.

Conclusions. To summarize, we created and evaluated a risk stratification model based on DL to predict 12-month death in AMI patients. Compared to traditional risk scales, the newly developed model has a much higher accuracy (GRACE score). It has been established that deep learning algorithms may be more useful for predicting mortality and directing the care of cardiac patients.