CARDIAC RISK STRATIFICATION WITH ARTIFICIAL INTELLIGENCE IN EMERGENCY CARE

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Background. Sudden cardiac death (SCD) is a major cause of mortality. In emergency settings, rapid risk detection is vital. Traditional risk assessment methods are insufficient. Artificial intelligence (AI) applied to standard electrocardiography represents a promising approach for improving early risk stratification.

Objective(s). To evaluate the performance of an AI model applied to standard 12-lead ECG for predicting the risk of sudden cardiac death and to explore its integration into emergency care in Republic of Moldova.

Materials and methods. The study analyzed 2510 SCD cases and 1325 controls from two international cohorts (SUDS and Ventura PRESTO). Electrocardiograms were processed using a convolutional neural network, and model performance was statistically evaluated through AUROC, sensitivity, and specificity. Analyses were conducted using Python and R.

Results. The AI model showed high accuracy, with AUROC (Area Under the Receiver Operating Characteristic curve) of 0.889 and 0.820, excelling conventional ECG scores (0.712 and 0.743). Sensitivity was 84.3% and specificity 81.8%, showing the model correctly identified most patients who had the risk and correctly excluded those who did not. Combining the AI score with clinical data in logistic regression improved prediction, increasing AUROC from 0.780 to 0.919 and from 0.806 to 0.899. These findings highlight the AI model's potential in early SCD risk detection and support its integration into clinical decision-making processes.

Conclusion(s). Being non-invasive, cost-effective, and easy to implement, the AI-based ECG model could become a valuable tool for SCD risk stratification in emergency departments in the Republic of Moldova. It supports personalized, preventive care especially in time-critical contexts.

Keywords: sudden cardiac death, ECG, artificial intelligence, prediction

ONCOLOGICAL COMPLICATIONS

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Background. Oncological complications represent a constant challenge in medical practice, negatively impacting both patients' quality of life and life expectancy. Disease progression and oncological treatments are associated with a certain degree of toxicity, requiring close monitoring and a multidisciplinary approach.

Objective(s). The aim of this study was to determine the frequency and severity of the main oncological complications, including surgical, therapeutic, and those arising during the course of the disease.

Materials and methods. A systematic analysis of scientific literature published in the last 10 years was conducted by consulting the PubMed, NCBI, and ScienceDirect databases. Relevant articles were selected that describe complications arising after oncological therapy and their effects on the clinical and functional status of patients.

Results. It was observed that the incidence of oncological complications varies depending on the type of therapy administered. Chemotherapy was frequently associated with febrile