

عنوان مقاله:

Predicting COVID-۱۹ Mortality and Identifying Clinical Symptom Patterns in Hospitalized Patients : A Machine-learning Study

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خلاصه مقاله:

Background and Purpose: Identifying effective symptoms, demographic information, and underlying diseases to predict COVID-۱۹ mortality is essential. We aimed to study the effective clinical and symptomatic characteristics of COVID-۱۹ mortality in hospitalized patients with positive polymerase chain reaction (PCR) test results. **Materials and Methods:** For this study, we prospectively collected complete data on ۲۶۸۶۷ hospitalized individuals who tested PCR positive for COVID-۱۹ from February ۲۰, ۲۰۲۰, to September ۱۲, ۲۰۲۱, in the Khorasan Razavi Province, Iran. We analyzed the data using artificial neural networks (ANN) and logistic regression (LR) models. **Results:** The accuracy of the ANN model was higher than the LR (۹۰.۲۷% versus ۹۰.۱۵%). The ten most important predictors that contributed to the prediction of death were decreasing consciousness level, cough, PO۲ level, age, chronic kidney disease, fever, headache, smoking status, chronic blood diseases, and diarrhea using the ANN model. **Conclusion:** In conclusion, individuals suffering from chronic diseases such as cancer, kidney and blood diseases, as well as immunodeficiency are at a higher risk of mortality. This important finding can help decision-makers and medical professionals in their efforts to consider these conditions and provide effective preventative measures to reduce the risk of death.

کلمات کلیدی:

Machine learning, SARS-CoV-۲, COVID-۱۹ diagnostic testing, Logistic regression, Neural network

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