عنوان مقاله:

Performance Analysis of Selected Decision Tree Algorithms for Predicting Drug Adverse Reaction among COVID-۱۹ Hospitalized Patients

محل انتشار:

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خلاصه مقاله:

Increase in drug allergies and unpleasant adverse effects caused by COVID-۱۹ medication therapies has doubled the need for computing technologies and intelligent systems for predicting poor medication outcomes. This study aimed to construct machine learning (ML) based prediction models to better predict adverse drug effects among COVID-۱۹ hospitalized patients. In this retrospective and single-center study, ۴۸۲ hospitalized COVID-۱۹ patients were used for analysis. First, the Chi-square test was employed to determine the most critical factors predicting adverse drug effects at P<۰.۰۵. Second, the four selected decision tree (DT) algorithms were applied to implement the model. Finally, the

best DT model was acquired for predicting adverse drug effects using various performance criteria. This study showed that the ۱۸ variables gained the Chi-square at P<۰.۰۵ as the most important factors predicting adverse drug reactions. Besides, comparing the performance of selected algorithms demonstrated that generally, the J-۴۸ algorithm with F-Score=۹۴.۶% and AUC=۰.۹۵۷ was the best classifier predicting adverse drug reactions among hospitalized COVID-۱۹ patients. Finally, it found that the J-۴۸ algorithm enables a reasonable level of accuracy in predicting the risk of harmful drug effects among COVID-۱۹ hospitalized patients. It potentially facilitates identifying high-risk patients and informing proper interventions by the clinicians.

کلمات کلیدی:

COVID-۱۹, Coronavirus, Artificial Intelligent, Machine Learning, Drug Therapy, Adverse effects