

عنوان مقاله:

Proposed Method for Predicting COVID-۱۹ Severity in Chronic Kidney Disease Patients Based on Ant Colony Algorithm and CHAID

محل انتشار:

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نویسندگان:

Firouzeh Moeinzadeh - *Isfahan Kidney Diseases Research Center, Isfahan University of Medical Sciences, Isfahan, Iran*

Mohammad Sattari - *Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran*

خلاصه مقاله:

Background and Objective: The COVID-۱۹ pandemic is a phenomenon that has infected and killed many people worldwide. Underlying diseases such as diabetes mellitus, heart failure, and chronic kidney disease (CKD) can affect the severity of COVID-۱۹ and aggravate patients' condition. This study aimed to predict the severity of the COVID-۱۹ disease in CKD patients by combining feature selection and classification methods. **Materials and Methods:** This study was conducted between March ۲۰۲۱ and September ۲۰۲۱ in Isfahan University of Medical Sciences. The data set includes ۸۳ traits of ۷۲ kidney transplant patients, ۲۳۱ kidney failure patients, and ۱۰۵ dialysis patients. The data set has ۷۷ input attributes, including age, sex, diabetes mellitus, hypertension, ischemic heart disease, chronic lung disease, and kidney transplant. In the proposed method, the combination of ant colony algorithm and the CHAID method has been used. **Results:** The combination of the ant colony algorithm and CHAID method leads to better performance than CHAID alone. A total of ۲۲ rules were extracted, of which ۶ rules with a confidence of more than ۶۰% were introduced as selected rules. The most reliable rule states that if a person has CKD stage ۵, is not undergoing dialysis (۵ND), and is short of breath, in ۸۱% of cases the type of COVID-۱۹ disease will be severe. **Conclusion:** In this study the severity of COVID-۱۹ disease in kidney patients was measured using variables including age, diabetes mellitus, blood pressure, CKD stage, etc. The results showed that high levels of kidney disease can lead to severe COVID-۱۹.

کلمات کلیدی:

Data mining, Prediction, Kidney disease, COVID-۱۹

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