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Intelligent Diagnostic Prediction and Classification Models for Detection of Kidney Disease

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Abstract

Kidney disease is a major public health concern that has only recently emerged. Toxins are removed from the body by the kidneys through urine. In the early stages of the condition, the patient has no problems, but recovery is difficult in the later stages. Doctors must be able to recognize this condition early in order to save the lives of their patients. To detect this illness early on, researchers have used a variety of methods. Prediction analysis based on machine learning has been shown to be more accurate than other methodologies. This research can help us to better understand global disparities in kidney disease, as well as what we can do to address them and coordinate our efforts to achieve global kidney health equity. This study provides an excellent feature-based prediction model for detecting kidney disease. Various machine learning algorithms, including k-nearest neighbors algorithm (KNN), artificial neural networks (ANN), support vector machines (SVM), naive bayes (NB), and others, as well as Re-cursive Feature Elimination (RFE) and Chi-Square test feature-selection techniques, were used to build and analyze various prediction models on a publicly available dataset of healthy and kidney disease patients. The studies found that a logistic regression-based prediction model with optimal features chosen using the Chi-Square technique had the highest