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Inteligência Artificial na Melhoria do Diagnóstico da Dengue: Um Estudo Utilizando Dados de Prontuário

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Resumo

This work proposes and evaluates a machine learning model for clinical diagnosis of dengue fever using medical record data. Dengue fever poses a challenge to public health due to its wide range of nonspecific symptoms, which makes it difficult to differentiate from other febrile illnesses. The application of artificial intelligence offers a promising solution to improve the accuracy of dengue diagnosis. Using a dataset of medical records made available by the Municipal Health Secretariat of Recife, Brazil, several AI algorithms were explored, including Naive Bayes, Decision Trees, and Support Vector Machines (SVM). The models were evaluated using 10-fold cross-validation repeated 3 times. The results indicated that the Random Forest models achieved the best performance, with an accuracy of 81.43%, kappa of 0.66, and area under the ROC curve of 0.92. The integration of artificial intelligence with medical record data allowed for a more comprehensive and accurate assessment of patients, facilitating early identification and appropriate treatment of dengue fever. Considering the high prevalence and diagnostic challenges associated with dengue fever, the use of AI models based on medical record data represents a promising tool to improve clinical outcomes and reduce the impact of the disease on public health. This study highlights the importance of collaboration between biomedical informatics and digital epidemiology in the search for innovative solutions to global health challenges.

Palavras-chaves: dengue, aprendizado de máquina, diagnóstico clínico, prontuário eletrônico do paciente, inteligência artificial