Abstract

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Artificial intelligence detects and distinguishes covid-19 pneumonia from community acquired pneumonia in children on chest CT

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Abstract

To evaluate the performance of an automatic unified model that combined a pre-trained deep learning segmentation model, radiomic feature extraction and machine learning methods for classifying coronavirus disease 2019 (COVID-19) versus community acquired pneumonia (CAP) in children based on computed tomography (CT).

Method: This retrospective study included children with COVID-19 (n = 34) and CAP (n = 70). The CT scans were collected from two children hospitals in China. A pre-trained deep learning segmentation model was used to segment pneumonia lesion on which the radiomic features were extracted. Four classifiers: logistic regression (LR), K nearest neighbours (KNN), random forest (RF) and support vector machine (SVM) were trained and evaluated with leave-one-out cross-validation approach and diagnostic performance was assessed by the area under the receiver operating characteristic curve (AUC), sensitivity, specificity and accuracy.

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Biography

Zheng Zhang has completed his MD from Oran School of Medicine. Currently, he works as a Pediatric Surgeon at Children Hospital of Oran, Algeria, in Pediatric Urology Department. He published many of the research articles which are related to urethral problems in children.