Abstract

Stroke is the third leading cause of death following diseases of heart and cancer. The majority of strokes are classified as ischemic which have two types: thrombotic and embolic. In thrombotic stroke, the blood clot (thrombus) forms in one of the arteries that supplies blood to brain. The embolic stroke happens when a blood clot that forms somewhere else in the body (embolus) break loose and travels to the brain through the bloodstream. Hemorrhagic stroke is considered another type of brain stroke by some researchers as it happen when an artery in the brain leaks blood or ruptures. As a reason of hemorrhagic stroke, the brain cells damages as result of the pressure from the leaked blood. There are many similarities between these types and it is difficult to classify the cases accurately using medical procedures. Furthermore, there are no clear boundaries between these types. This paper reviewed and analyzed the current studies on classification of ischemic stroke. Furthermore, the study has developed a classification model for ischemic stroke using decision tree algorithm and k nearest neighbor. The classification model is based on a dataset of 400 cases collected from different Sudanese hospitals. The results of the decision tree algorithm can be used by medical specialist to classify
and diagnose ischemic stroke patients. Moreover, the study revealed that some features can be
used directly to determine the type of ischemic stroke. These results help the medical doctors in
the classification process of ischemic strokes. Furthermore, the results found that most of the
ischemic stroke cases in Sudan are thrombotic ischemic stroke.

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Keywords

Ischemic Stroke, Machine Learning, Decision Tree, KNN