

Determining of the Performance of Data Mining Algorithm Determining the Influential Factors and Prediction of Ischemic Stroke: A Comparative Study in the Southeast of Iran

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Abstract : Ischemic stroke is one of the common reasons for disability and mortality. The fourth leading cause of death in the world and the third in some other sources. Only 1/3 of the patients with ischemic stroke fully recover, 1/3 of them end in permanent disability and 1/3 face death. Thus, the use of predictive models to predict stroke has a vital role in reducing the complications and costs related to this disease. Thus, the aim of this study was to specify the effective factors and predict ischemic stroke with the help of DM methods. The present study was a descriptive-analytic study. The population was 213 cases from among patients referring to Ali ibn Abi Talib (AS) Hospital in Zahedan. Data collection tool was a checklist with the validity and reliability confirmed. This study used DM algorithms of decision tree for modeling. Data analysis was performed using SPSS-19 and SPSS Modeler 14.2. The results of the comparison of algorithms showed that CHAID algorithm with 95.7% accuracy has the best performance. Moreover, based on the model created, factors such as anemia, diabetes mellitus, hyperlipidemia, transient ischemic attacks, coronary artery disease, and atherosclerosis are the most effective factors in stroke. Decision tree algorithms, especially CHAID algorithm, have acceptable precision and predictive ability to determine the factors affecting ischemic stroke. Thus, by creating predictive models through this algorithm, will play a significant role in decreasing the mortality and disability caused by ischemic stroke.

Keywords : data mining, ischemic stroke, decision tree, Bayesian network

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