Abstract

Hepatitis B is one of the liver diseases that is difficult to discover at an early stage of its attack and prominent public health problem. As at 2017, medical statistic recorded that over 23 million of Nigerians were living with Hepatitis B. Several decision support systems used in diagnosing liver diseases derived their efficiencies from artificial intelligence techniques in tackling the challenges facing physician in respect to complexity of the numerous variables involved in liver diseases diagnosis. In this paper, Adaptive Neuro-Fuzzy Inference System (ANFIS) was employed to invoke neural network that provided structures for fuzzy inference engine (FIE) in order to learn information about the normalized dataset on hepatitis B. The neural network (NN) triggers backpropagation and least square methods for tuning the membership functions at the fuzzification stage while the center of area (COA) was used as defuzzification method to compute the weighted average of the fuzzy set and intensity level of the disease for each record. The system was implemented with technical computing language, MATHLAB, on a dataset that consists of 155 instances and 20 attributes of which only the most five liver function tests (LFTs) attributes were selected as input parameters and the corresponding linguistic
values and intensity levels were generated as output in order to identify the severity level of the infection. After the system was evaluated, the performance metric gave accuracy of 90.2%.

References


**Index Terms**

Computer Science  Fuzzy Systems

**Keywords**

Hepatitis B, Intensity Level, Decision Support System