Soft Computing Approach for Diagnosis of Lassa Fever

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Abstract : Lassa fever is an epidemic hemorrhagic fever caused by the Lassa virus, an extremely virulent arena virus. This highly fatal disorder kills 10% to 50% of its victims, but those who survive its early stages usually recover and acquire immunity to secondary attacks. One of the major challenges in giving proper treatment is lack of fast and accurate diagnosis of the disease due to multiplicity of symptoms associated with the disease which could be similar to other clinical conditions and makes it difficult to diagnose early. This paper proposed an Adaptive Neuro Fuzzy Inference System (ANFIS) for the prediction of Lass Fever. In the design of the diagnostic system, four main attributes were considered as the input parameters and one output parameter for the system. The input parameters are Temperature on admission (TA), White Blood Count (WBC), Proteinuria (P) and Abdominal Pain (AP). Sixty-one percent of the datasets were used in training the system while fifty-nine used in testing. Experimental results from this study gave a reliable and accurate prediction of Lassa fever when compared with clinically confirmed cases. In this study, we have proposed Lassa fever diagnostic system to aid surgeons and medical healthcare practictionals in health care facilities who do not have ready access to Polymerase Chain Reaction (PCR) diagnosis to predict possible Lassa fever infection.

Keywords : anfis, lassa fever, medical diagnosis, soft computing

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