

Computer-Aided Diagnosis of Polycystic Kidney Disease Using ANN

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Abstract : Many inherited diseases and non-hereditary disorders are common in the development of renal cystic diseases. Polycystic kidney disease (PKD) is a disorder developed within the kidneys in which grouping of cysts filled with water like fluid. PKD is responsible for 5-10% of end-stage renal failure treated by dialysis or transplantation. New experimental models, application of molecular biology techniques have provided new insights into the pathogenesis of PKD. Researchers are showing keen interest for developing an automated system by applying computer aided techniques for the diagnosis of diseases. In this paper a multi-layered feed forward neural network with one hidden layer is constructed, trained and tested by applying back propagation learning rule for the diagnosis of PKD based on physical symptoms and test results of urinalysis collected from the individual patients. The data collected from 50 patients are used to train and test the network. Among these samples, 75% of the data used for training and remaining 25% of the data are used for testing purpose. Furthermore, this trained network is used to implement for new samples. The output results in normality and abnormality of the patient.

Keywords : dialysis, hereditary, transplantation, polycystic, pathogenesis

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