Abstract

The main target of this research is to design a Fuzzy Based Expert System for the diagnosis and analysis of congestive heart failure (CHF). The designed system has seven inputs like breathing problem, cough, heart rate, swelling, weight gain, urination, lack energy. The output field provide the stage of CHF in the patient. There are four stages stage1, stage2, stage3 and stage4. It is an integer valued from 0 (means no presence) to 1 (which is distinguish presence). Various membership functions are used for different symptoms. The proposed fuzzy expert system uses Mamdani inference method. The input data is collected from a total of 10 people which consists of male and female with different working background. The results obtained from proposed expert system are compared with data in database and it is observed that results of proposed system are correct in 90% and also the expert system designed in Matlab software. This proposed expert system may be used as an alternative approach for existing methods to distinguish of congestive heart failure (CHF) presence. Heart failure is a common cardiovascular disease with high morbidity and mortality. Thus, an intelligent and accurate diagnostic system is needed in order to threat the CHF patients. The linguistic variables, diagnosis process and their values were modeled based upon expert’s knowledge and from existing literature survey. It is expected that the proposed Fuzzy Expert System can provide a cheaper, faster and more approximate result compared with other traditional methods available today. Congestive heart failure (CHF) is almost common clinical disorder that results in pulmonary vascular congestion and reduced cardiac output. Patients
with CHF are suffer with pulmonary complications, including obstructive sleep problem, edema (pulmonary), and pleural effusions.

References


Index Terms

Computer Science
Fuzzy Systems
Keywords
Congestive heart failure  CHF  Fuzzy logic  Expert system  membership function
Heart analysis