

عنوان مقاله:

Healthcare Expert System Based on Fuzzy Logic : Case Study on Diagnosing Headache

محل انتشار:

چهارمین کنفرانس بین المللی مهندسی صنایع و سیستمها (سال: 1397)

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خلاصه مقاله:

Expert systems in healthcare are widely studied by researchers where the accuracy on diagnosing and efficiency of the system are the considerations also; expert systems have been playing an important role in serving and advancing healthcare and can play a vital role in such cases where the medical expert is not readily available. The purpose of this paper is to distinguish and diagnosis common headaches by fuzzy logic and fuzzy system. A fuzzy expert system for the distinguish types of common headaches is presented, that mamdani model was used in fuzzy inference engine using Max-Min as OR-AND operators and Centroid method was used as defuzzification technique. The fuzzy system was evaluated using data obtained from 150 patients and showed 82% good agreement and high ability in terms of correct diagnosis. Accuracy, Precision, sensitivity, specificity of the system were 86%, 93%, 85%, 88% for migraine , 93%, 91%, 55%, 99% for tension, 97%, 86%, 66%, 99% for headaches result of infection and 95%, 85%, 88%, 97% for headaches result of increase of ICP, respectively. To measure agreement of system results with the physician diagnosis, Kappa statistics was employed and showed a high relation, 71%, 65%, 74% and 84% for migraine, tension, headaches result of infection and headaches result of increase of ICP, respectively. According to proximity of common headaches symptoms, and importance of early diagnosis of headache, and favorable results of the implementation and evaluation of the suggested expert system, therefor this system can be very useful for diagnosis of common headaches with similar symptoms

کلمات کلیدی:

Health systems engineering; Primary headache; Secondary headache; Expert system; Fuzzy logic

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