

Fuzzy System for Determination the Optimum Electrotherapeutic Parameters

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Abstract

This paper presents a fuzzy system for estimating the optimum electrotherapeutic parameters (frequency, amplitude and session duration) for patients under pain relief application. Twenty patients were examined during their treating sessions. Several aspects have been considered and assessed during study; including patient's demographic data (age, gender and body mass index (BMI)). In addition, certain features such as, heart rate and fatigue index -that should be fed back from the patient during treatment session- were considered based on prior data. The proposed system relies on fuzzy rules defined from physiological knowledge and clinical experience. The obtained results showed that the developed fuzzy system can successfully solve the problems and lacks of the available electrotherapeutic systems regarding the generation of optimum therapeutic parameters.