

عنوان مقاله:

Data incompleteness preventing information communication from hospital information systems to the Iranian national (electronic health record (SEPAS

محل انتشار:

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تعداد صفحات اصل مقاله: 7

نویسندگان:

Melika Babaei - Mashhad University of Medical Sciences, Mashhad, Iran

Sharareh Rostam Niakan Kalhori - Associate Professor, Department of Health Information Management, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran

Shima Sheybani - Assistant Professor, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Hesam Karim - PhD in Medical Informatics, Tehran Shahre Salem Company, Tehran Municipality, Tehran, Iran

خلاصه مقاله:

Introduction: Inadequate anesthetic, including under or over dosage, may lead to intraoperative awareness or prolonged recovery. Fuzzy expert systems can assist anesthesiologist to manage drug dosage in a right manner. Designing a fuzzy rule-based expert system to determine the Propofol anesthetic drug dosage was the main objective of this study. Material and Methods: This is a retrospective study. Fuzzy IF-THEN rules were defined based on evidences and experts' linguistic rules for Propofol dose determination. Fuzzy toolbox in MATLAB software was used to design the system. Validation of system conducted with calculation of mean absolute error (MAE) and root mean squared error (RMSE). Also, difference mean between actual and predicted doses was tested with paired t-test in SPSS V.۲۶ software. Data from ۵۰ ENT (ears, nose, and throat) surgeries were used to validate the fuzzy system. Results: MAE for induction and maintenance doses was ۰.۱۲۸ and ۱.۹۵ respectively. RMSE for induction and maintenance doses was ۰.۲۲۸ and ۳.۳۸۳ respectively. Based on paired t-test result, there was no significant correlation between actual and predicted values ($P > ۰.۰۵$). Conclusion: Obtained value from test and validation of system demonstrated a high performance and satisfying accuracy of the system. Therefore, this expert system can be used as a decision support system to determine initial dosage of anesthetic drugs. It can also be used for anesthesia students to learn drug administration.

کلمات کلیدی:

Fuzzy Logic, Expert System, Decision Support System, Anesthesia

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