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Information Management Approach in the Prediction of Acute Appendicitis

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Abstract : This research aims at presenting a predictive data mining model to handle an accurate diagnosis of acute appendicitis with patients for the purpose of maximizing the health service quality, minimizing morbidity/mortality, and reducing cost. However, acute appendicitis is the most common disease which requires timely accurate diagnosis and needs surgical intervention. Although the treatment of acute appendicitis is simple and straightforward, its diagnosis is still difficult because no single sign, symptom, laboratory or image examination accurately confirms the diagnosis of acute appendicitis in all cases. This contributes in increasing morbidity and negative appendectomy. In this study, the authors propose to generate an accurate model in prediction of patients with acute appendicitis which is based, firstly, on the segmentation technique associated to ABC algorithm to segment the patients; secondly, on applying fuzzy logic to process the massive volume of heterogeneous and noisy data (age, sex, fever, white blood cell, neutrophilia, CRP, urine, ultrasound, CT, appendectomy, etc.) in order to express knowledge and analyze the relationships among data in a comprehensive manner; and thirdly, on applying dynamic programming technique to reduce the number of data attributes. The proposed model is evaluated based on a set of benchmark techniques and even on a set of benchmark classification problems of osteoporosis, diabetes and heart obtained from the UCI data and other data sources.

Keywords : healthcare management, acute appendicitis, data mining, classification, decision tree
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