

EUPSA 2019

EUROPEAN PAEDIATRIC SURGEONS' ASSOCIATION



ABSTRACT BOOK

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PW15GE11: A NOVEL METHOD IN PREOPERATIVE DIAGNOSIS OF ACUTE APPENDICITIS IN CHILDREN

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AIM OF STUDY

There is a tendency toward the nonoperative management which results in an increasing need for preoperative diagnosis and classification of appendicitis. For medical decision-making purposes conceptual simple decision-making models that can learn, are widely used. Decision trees are reliable and effective techniques which provide high classification accuracy. We aim to test if we can detect appendicitis patients and differentiate noncomplicated appendicitis from complicated.

METHODS

After approval of IRB#2017/2549, all cases admitted between 2010 and 2016 were grouped as Group 1 healthy control, Group 2 sham control, Group 3 sham disease and Group 4 disease which also analyzed under four groups as false laparotomy, noncomplicated, complicated without abscess and complicated with abscess. Patients who had comorbidities and whose CBC or pathology results were lack, excluded from the study. Data was collected by demographics, preoperative blood analysis, and postoperative diagnosis. Various machine learning algorithms applied to detect appendicitis patients. Most of the algorithms, especially linear methods, provided similar performance measures. We have preferred decision tree model due to its easier interpretability.

MAIN RESULTS

There were 7244 patients with a mean age of 6.84 ± 5.31 years, of which 82.3% (5960/7244) were male. We detect the appendicitis patients with 95.45% accuracy, 97.87 % area under the curve (AUC), 97.63% sensitivity and 94.11% specificity, and noncomplicated appendicitis with 70.83% accuracy, 79.47% AUC, 66.81% sensitivity and 81.88% specificity (Figure 1).

CONCLUSION

Machine learning is a novel approach to prevent unnecessary operations and decrease the burden of appendicitis both on patients and health systems.

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CERTIFICATE OF ATTENDANCE

This is to certify that

Emrah Aydin

PASIVNO UČEŠĆE/PARTICIPANT

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