

A MACHINE LEARNING MODEL FOR PREDICTING NEOPLASTIC PROGRESSION IN BARRETT'S ESOPHAGUS

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Poster

Oesophagus

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A machine learning model using clinical, endoscopic, and p53 immunohistochemistry data achieved an AUC of 0.837 for predicting neoplastic progression in Barrett's esophagus patients in a Dutch prospective cohort.

KEY POINTS

- The XGBoost model was developed from 1246 Barrett's esophagus patients in the ProBar study and demonstrated a mean accuracy of 84.4 percent, sensitivity of 74.6 percent, and specificity of 85.5 percent using 10-fold cross-validation.
- The seven most predictive features were sex, smoking history, alcohol use, education level, proton pump inhibitor use, presence of esophagitis, and p53 immunohistochemistry status, with p53 being the strongest predictor.
- During follow-up, 9.7 percent of patients showed neoplastic progression to high-grade dysplasia or esophageal adenocarcinoma, and the model performed better on the non-progression majority class despite class weighting.
- The authors suggest that clinical risk stratification could support more personalized surveillance strategies for Barrett's esophagus patients.

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