complete lymph node regression is comparable to that of those with true negative lymph node involvement. Pathologic complete lymph node regression could be a surrogate for chemoradiotherapy sensitivity and regarded as a good prognostic factor in patients with ESCC.

321 RANDOM SURVIVAL FOREST FOR PERSONALISED PROGNOSTICATION AFTER ESOPHAGECTOMY

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For patients with esophageal cancer, producing accurate prediction models for long-term survival after esophagectomy has proved challenging. We investigated whether Random Survival Forests (RSF), a machine learning method, could produce an accurate prognostic model for overall survival after esophagectomy.

Methods: The study used data from the 'National Oesophago-Gastric Cancer Audit' (NOGCA) and included patients diagnosed with esophageal adenocarcinoma or squamous cell carcinoma between 2012 and 2018 in England and Wales and who underwent a curative esophagectomy with adequate lymphadenectomy (15 lymph nodes) and survived to discharge (n = 6838). Missing data was handled using multiple imputation. 15 variables were selected for inclusion using Random Forest variable importance and used to train the final model. The same variables with non-linearity transformations were used to develop a traditional Cox regression model for comparison.

Results: Median survival was 50 months. The final RSF model had good discrimination on internal validation with a C-index of 0.7627 (0.7625–0.7629), exceeding the cox model 0.7539 (0.7541–0.7537). At 3 years post-surgery, overall survival was 56.2%. The RSF yielded a mean predicted survival of 59.3% (IQR 33.3–87.1%) with good calibration (Figure 1) compared to 57.4% (38.4%–79.8%) for the cox model. The most influential variables were lymph node involvement and pT/ypT stage, however other variables including neoadjuvant treatment completion and surgical complications were also important. Decision curve analysis was undertaken which also showed an increased net benefit with the RSF model.

Conclusion: A Random Forest survival model provided better performance in predicting survival after curative esophagectomy. This will allow more personalised predictions to be delivered clinicians and patients. An online web app is provided at https://uoscancer.shinyapps.io/NOGCA/

322 THORACOSCOPIC RETROSTERNAL GASTRIC CONDUIT RESECTION IN THE SUPINE POSITION FOR GASTRIC TUBE CANCER

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Recent advances in treatment for esophageal cancer have improved prognosis after esophagectomy, but they have led to an increased incidence of gastric conduit cancer. In most gastric conduit cancer patients who underwent retrosternal reconstruction, median sternotomy is performed, which is associated with a risk of postoperative bleeding and osteomyelitis; pain often negatively affects respiration. To avoid these problems, we developed thoracoscopic retrosternal gastric conduit resection in the supine position (TRGR-S) as new procedure.

Methods: We performed the first case of TRGR-S for a 75-year-old male with retrosternal gastric conduit cancer. He was placed in the supine position. Four ports were placed in the left chest wall. The gastric conduit was separated from the epicardium, sternum, and left brachiocephalic vein. Due to adhesions between the gastric tube and the right pleura, combined resection of the right pleura was performed. Next, pediculated jejunal reconstruction via the presternal route was performed.

Results: Because there were few adhesions in the left thoracic cavity, this approach provided safety and a good surgical view, and it was easy to recognize the landmark including epicardium, sternum, and left brachiocephalic vein leading to appropriate resection of the tissue. Furthermore, there were few restrictions on the operative angle for the forceps and operability was