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Development and multicentre validation of a prognostic model to predict resectability of pancreatic head malignancyK. Gerke^{1,2}, K. J. Roberts³, B. Reichert⁴, R. P. Sutcliffe³, F. Marcon³, S. K. Kamarajah³, A. Kaltenborn², T. Becker⁴, N. G. Heits⁴, D. F. Mirzac, J. Klempnauer¹ and H. Schrem^{1,2}¹Hannover Medical School, Germany²Integrated Research and Treatment Centre Transplantation (IFB-Tx), Hannover³Queen Elizabeth Hospital, UK⁴University Medical Centre Schleswig-Holstein, Germany

Statement of the Problem: At the time of planned pancreatoduodenectomy patients frequently undergo exploratory laparotomy without resection, leading to delayed systemic therapy. This study aimed to develop and validate a prognostic model for the preoperative prediction of resectability of pancreatic head tumours.

Methodology & Theoretical Orientation: This was a retrospective study of patients undergoing attempted resection for confirmed malignant tumours of the pancreatic head in a university hospital in Hannover, Germany. The prognostic value of patient and tumour characteristics was investigated in a multivariable logistic regression model. External validation was performed using data from two other centres.

Findings: Some 109 patients were included in the development cohort, with 51 and 175 patients in the two validation cohorts. Eighty patients (73.4%) in the development cohort underwent resection, and 37 (73%) and 141 (80.6%) in the validation cohorts. The main reasons for performing no resection in the development cohort were: Local invasion of vasculature or arterial abutment (15 patients, 52%), and liver (12, 41%), peritoneal (8, 28%) and aortocaval lymph node (6, 21%) metastases. The final model contained the following variables: Time to surgery (OR 0.99, 95 per cent c.i. 0.98 to 0.99), carbohydrate antigen 19-9 concentration (OR 0.99, 0.99 to 0.99), jaundice (OR 4.45, 1.21 to 16.36) and back pain (OR 0.02, 0.00 to 0.22), with an area under the receiver operating characteristic curve (AUROC) of 0.918 in the development cohort. AUROC values were 0.813 and 0.761 in the validation cohorts. The positive predictive value of the final model for prediction of resectability was 98.0 per cent in the development cohort, and 91.7 and 94.7 per cent in the two external validation cohorts.

Conclusions: For preoperative prediction of the likelihood of resectability of pancreatic head tumours, this validated model is a valuable addition to CT findings.

Biography

Konstantin Gerken has been graduated from Hannover Medical School as Medical Doctor. From 2015 to 2017 he has been doing research at the Core Facility for Quality Management and Health Technology Assessment in Transplantation at Hannover Medical School. Since 2018 he has started working there at the Department of Anesthesiology and Intensive Care Medicine.

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