C-54

Prediction of Survival for Pancreatic Neuroendocrine Tumors: A Systematic Review of Clinical Tools

George Ho[1]; Kaitlyn Beyfuss[2]; Sten Myrehaug[1]; David Chan[3]; Victoria Zuk[2]; Calvin Law[1]; Alyson Mahar[4]; Julie Hallet[1];

[1]University of Toronto; [2]Sunnybrook Research Institute, Sunnybrook Health Sciences Centre; [3]University of Sydney; [4]University of Manitoba

BACKGROUND: Individual prognostication can support the management of pancreas neuroendocrine tumors (PNETs). Little is known about PNETs prediction tools' accuracy and utility. We sought to evaluate the quality of prediction tools in PNETs.

METHODS: We systematically searched the literature for studies reporting development or validation of tools predicting survival for PNETs. We evaluated the tools using the Critical Appraisal and Data Extraction for Systematic Reviews of Prediction Modelling Studies guidelines and the American Joint Committee on Cancer (AJCC) acceptance criteria for risk models.

RESULTS: We identified 7 tools to predict survival in PNETs that all addressed resected tumors. All were developed on patients diagnosed back to 1980-90s. They included 2 to 5 prognostic factors; the majority excluded key factors such as age and sex. Tumor grade was most commonly included. Five tools were designed to predict overall survival, and two for both disease-specific and recurrence-free survival. Two tools underwent bootstrapping internal validation with one showing "good" discrimination (C-statistic: 0.74). Two tools were externally validated: calibration was evaluated with inspection of survival curves and estimates, but discrimination was not assessed. Validation samples relied on unknown or small (<100) number of events. No tool met AJCC acceptability criteria for risk models.

CONCLUSION: Existing tools cannot be confidently used for PNETs prognostication in current clinical practice. Patient-level and non-pathologic disease factors should be included for more personalized prognostication. Better quality tools should be developed and validated following best methodology practices for predictive tools development and validation.