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סרטן לבלב בעידן ה – Big data - ממידע אפידמיולוגי לכלי ניבוי בעל משמעות קלינית

BACKGROUND & AIMS:
Approximately 50% of all patients with pancreatic ductal adenocarcinoma (PDA) develop diabetes mellitus before their cancer diagnosis. Screening individuals with new-onset diabetes might allow earlier diagnosis of PDA. We sought to develop and validate a PDA risk prediction model to identify high-risk individuals among those with new-onset diabetes.

METHODS:
We conducted a retrospective cohort study in a population representative database from the United Kingdom. Individuals with incident diabetes after the age of 35 years and 3 or more years of follow-up after diagnosis of diabetes were eligible for inclusion. Candidate predictors consisted of epidemiologic and clinical characteristics available at the time of diabetes diagnosis. Variables with P values <.25 in the univariable analyses were evaluated using backward stepwise approach. Model discrimination was assessed using receiver operating characteristic curve analysis. Calibration was evaluated using the Hosmer-Lemeshow test. Results were internally validated using a bootstrapping procedure.

RESULTS:
We analyzed data from 109,385 patients with new-onset diabetes. Among them, 390 (0.4%) were diagnosed with PDA within 3 years. The final model (area under the curve, 0.82; 95% confidence interval, 0.75-0.89) included age, body mass index, change in body mass index, smoking, use of proton pump inhibitors, and anti-diabetic medications, as well as levels of hemoglobin A1C, cholesterol, hemoglobin, creatinine, and alkaline phosphatase. Bootstrapping validation showed negligible optimism. If the predicted risk threshold for definitive PDA screening was set at 1% over 3 years, only 6.19% of the new-onset diabetes population would undergo definitive screening, which would identify patients with PDA with 44.7% sensitivity, 94.0% specificity, and a positive predictive value of 2.6%.

CONCLUSIONS:
We developed a risk model based on widely available clinical parameters to help identify patients with new-onset diabetes who might benefit from PDA screening.