Aim
To explore the risk factors of developing chronic pancreatitis (CP) in patients with acute pancreatitis (AP) and develop a prediction score for CP.
Methods
Using the National Health Insurance Research Database in Taiwan, we obtained large, population-based data of 5971 eligible patients diagnosed with AP from 2000 to 2013. After excluding patients with obstructive pancreatitis and biliary pancreatitis and those with a follow-up period of less than 1 year, we conducted a multivariate analysis using the data of 3739 patients to identify the risk factors of CP and subsequently develop a scoring system that could predict the development of CP in patients with AP. In addition, we validated the scoring system using a validation cohort.
Results
Among the study subjects, 142 patients (12.98%) developed CP among patients with RAP. On the other hand, only 32 patients (1.21%) developed CP among patients with only one episode of AP. The multivariate analysis revealed that the presence of recurrent AP (RAP), alcoholism, smoking habit, and age of onset of < 55 years were the four important risk factors for CP. We developed a scoring system (risk score 1 and risk score 2) from the derivation cohort by classifying the patients into low-risk, moderate-risk, and high-risk categories based on similar magnitudes of hazard and validated the performance using another validation cohort. Using the prediction score model, the area under the curve (AUC) (95% confidence interval (CI)) in predicting the 5-year CP incidence in risk score 1 (without the number of AP episodes) was 0.83 (0.79, 0.87), whereas the AUC (95%CI) in risk score 2 (including the number of AP episodes) was 0.84 (0.80, 0.88). This result demonstrated that the risk score 2 has somewhat better prediction performance than risk score 1. However, both of them had similar performance between the derivation and validation cohorts.
Conclusion
In the study, we identified the risk factors of CP and developed a prediction score model for CP.
Core tip In this large number, nationwide population-based cohort study, we concluded that the presence of recurrent acute pancreatitis (RAP), along with alcohol consumption, age of onset, and smoking habit are 4 important risk factors of chronic pancreatitis (CP). We developed a novel prediction score model for CP with excellent discrimination and successfully validated this model in our study. Using this scoring system, a clinician can predict the outcome of a patient with AP episode easily and arrange further examination such as pancreatic functional test or endoscopic ultrasound after the acute stage for the high-risk category to diagnose CP as early as possible (incidence rate of CP about 31 per 1000 person-years in high-risk group, based on our study) since CP is an important risk factor of pancreatic cancer.