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Long-term outcome after surgical resection for cholangiocarcinoma and prognostic index value[☆]



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ABSTRACT

Objective: To investigate the prognostic factors of patients with cholangiocarcinoma and establish a prognostic model to evaluate the prognosis.

Methods: 169 cases of cholangiocarcinoma were analyzed retrospectively. Clinicopathological factors were evaluated using univariate and multivariate analysis. Prognostic index (PI) was calculated based on the results of multivariate analysis. Patients with different PI were divided into 3 groups in order to compare the survival rate of each group and draw the survival curves. Individual expected survival rate was calculated based on the prognostic Cox model and PI. The PI equation was built that included all significant variables and coefficients as follow formula: $PI = (\beta_1 \times \text{lymph node metastasis}) + (\beta_2 \times \text{CEA level}) - (\beta_3 \times \text{surgical margin})$.

Results: Univariate analysis showed that CEA, lymph node metastasis, surgical margin, AJCC staging, tumor differentiation and adjuvant chemotherapy were prognostic impacts. The difference was statistically significant ($p < 0.05$). Cox multivariate analysis showed that CEA, lymph node metastasis and surgical margin are three separate prognostic factors. According to different PI, patients were divided into high-risk group, middle-risk group and low-risk group and three groups were statistically significant difference in survival rate ($P < 0.05$).

Conclusion: Radical resection is the key to improve the long-term survival rate of cholangiocarcinoma. By using prognostic Cox model and the PI, the prognosis of patients could be estimated and individualized clinical treatment could be conducted.

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Cholangiocarcinoma is a rare malignant tumor of the biliary system with a poor prognosis. It is a second most common malignancy of primary liver tumors worldwide.¹ Cholangiocarcinoma is commonly classified into 3 groups based on the location of the tumor: intrahepatic, hilar and distal types. Surgical resection offers the only potential chance of cure in cholangiocarcinoma. The present study retrospectively analyzed 169 patients of cholangiocarcinoma, from January 1999 to January 2009 in the hospital of Liaoning tumor hospital, Shen Zhou hospital, Huaxi hospital and the first hospital of China Medical University. Several variables were analyzed by univariate and multivariate methods to determine independent prognostic factors in order to calculate the prognostic index (PI) and then to establish a prognostic scoring system to identify patients most likely to benefit from surgery.

Patients

A total of 169 patients with cholangiocarcinoma underwent surgical therapy. The diagnosis was confirmed by histopathologic assessment (44 with intrahepatic cholangiocarcinoma, 42 with hilar cholangiocarcinoma, and 83 with distal cholangiocarcinoma).

Patients with distal cholangiocarcinoma typically underwent pancreatoduodenectomy with or without pylorus preservation, while surgical procedures for patients with intrahepatic or hilar cholangiocarcinoma almost always included major hepatectomy. All patients underwent dissection of regional lymph nodes including the nodes in the hepatoduodenal ligament, the anterior and posterior pancreatoduodenal nodes, and the nodes along the common

hepatic artery. In addition to dissection of these lymph nodes, patients with distal cholangiocarcinoma underwent dissection of the nodes along the superior mesenteric artery while they underwent pancreatoduodenectomy. However, dissection of para-aortic lymph nodes was not routinely performed in all patients. Intraoperative pathological assessment of proximal or distal ductal margins was performed using frozen tissue sections. If the ductal margin was positive for cancerous cells, further resection of the bile duct was performed to the maximum extent possible.²

Data for these patients were extracted from the hospital database and interviews, including gender, age, CEA (carcinoembryonic antigen) levels, total bilirubin, BMI (body mass index), adjuvant chemotherapy, tumor location, tumor differentiation, AJCC staging (7th edition of American Joint Committee on Cancer), pT stage (pathological tumor), pN stage (pathological node), surgical margin, lymph node metastasis.

Statistical analysis

Death occurring within 30 days after the surgical procedure was defined as operative mortality. Death occurring after surgery and before discharge was defined as hospital mortality. Survival time was calculated from the date of surgery to death or censored date. Patients who died of cholangiocarcinoma were treated as event observations, and patients who died of unrelated causes and were alive at the last follow-up were treated as censored observations. Survival curves were constructed using the Kaplan–Meier method and compared using the log-rank test. Significant prognostic

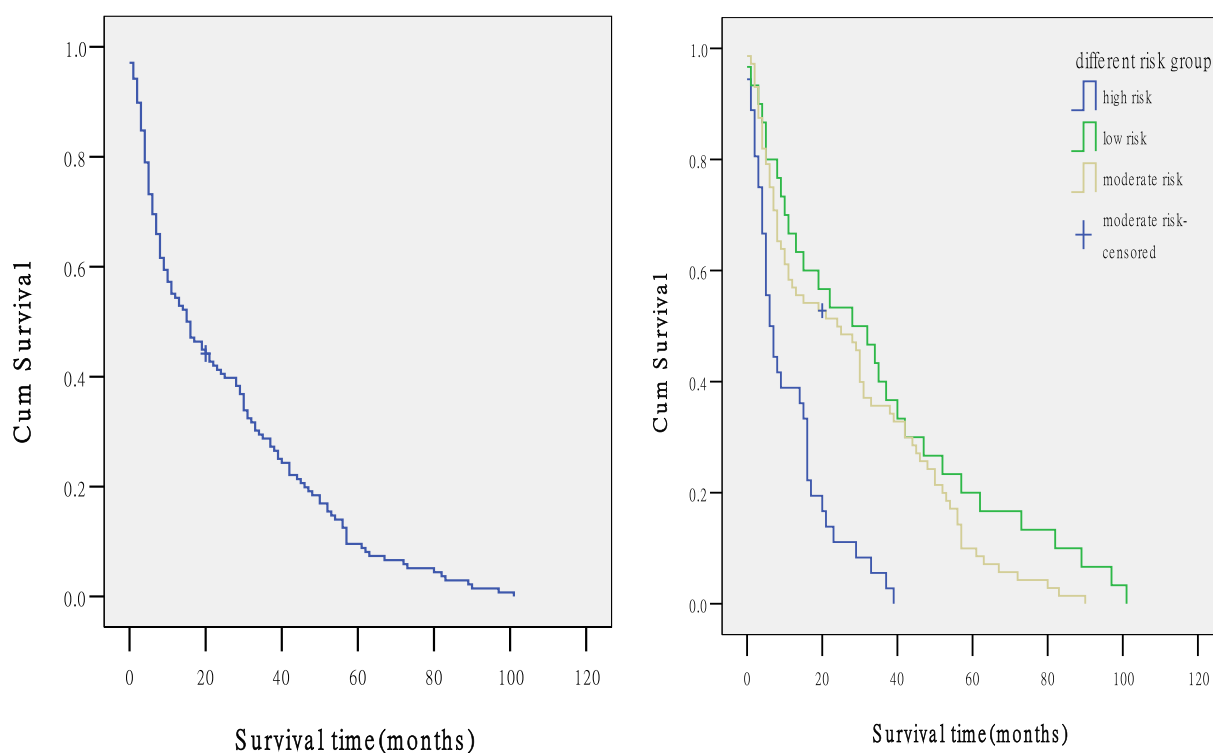


Fig. 1 – The overall and different risk group survival curve.

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