A Pilot Study of Clinical Prognostic Factors Including ROS1 Translocation and ALK Expression of Cholangiocarcinoma Patients in Ramathibodi Hospital

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**Background:** Cholangiocarcinoma in Western and Eastern population has the different genetic features, frequency, and prognosis. This study described the natural history and clinical behavior of the disease including exploration of prognostic factors and molecular alterations of cholangiocarcinoma in Thai population.

**Method:** A computerized search of tumor registry database and tissue archive database of Ramathibodi Hospital from November 2007 to December 2011 identified the patients who had the diagnosis of cholangiocarcinoma and having adequate tumor tissue for DNA/RNA extraction. Data on the natural history and clinical behavior were collected. The association and predictive ability of patient and tumor characteristics with overall survival (OS) and progression-free survival (PFS) outcomes were examined, respectively. The ALK expression and ROS1 rearrangement were performed.

**Results:** 157 patients’ medical records were reviewed. Median follow up time was 6.77 months. The median OS and median PFS were 6.96 and 4.5 months, respectively. There were 4 significantly prognostic factors for survival outcomes from multivariable-analysis including staging, ECOG performance status, surgical resection, and CA19-9 pretreatment level. Advance stage disease, poor performance status, high CA19-9 level ≥100 U/ml and inoperable case were correlated with poor survival outcomes. The level of CA19-9 ≥100 U/ml was the optimal cut point based on ROC curve which provided the best median OS discrimination. There was a trend showed better median OS in patients without metastatic lymph node. There was 1 out of 50 patients had ALK expression and this patient had OS at 30 months. ROS1 rearrangement was not found in 50 patients.

**Conclusion:** Our study provided strong evidence for four clinical and tumor features (staging, ECOG performance status, surgical resection, and CA19-9 pretreatment level) as prognosis factors for cholangiocarcinoma. ALK expression of tumor tissue may affect the survival of cholangiocarcinoma patient. Larger studies to further explore the molecular alterations of cholangiocarcinoma are urgently needed.