Prevalance of KRAS Gene Mutation in Ampullary Cancer in THAI Patients

Piyada Sithideatphaiboon, M.D., Naruemon Klaikaew, M.D., Ubon Pumsuk, M.D., Napa Parinyanitikul, M.D., Chanida Vinayanuwattikun, M.D., Suebpong Tanasanvimon, M.D. and Virote Sriuranpong, M.D.

The Thai Cancer, 2016, 31.56.002

**Background:** Ampullary cancer has been regarded to have a better prognosis than the other periampullary tumors. Certain data suggests that the difference may stem from certain distinct biology such as Kras mutation. Prior reports show a large variation of the prevalence of K-ras mutation from 0 to 75% in ampullary carcinomas. We sought to characterize the prevalence of K-ras mutations in ampullary carcinoma in Thai patients.

**Method:** We reviewed hospital medical records of ampullary carcinoma patients who were treated at the King Chulalongkorn Memorial Hospital (KCMH) from 1 Jan 2006 to 31 Dec 2012. There were 63 patients with histologically confirmed ampullary adenocarcinoma. Formalin-fixed paraffin embedded tissues were analyzed for K-ras mutation at codon 12 and 13 using the PCR amplification and pyrosequencing method method (Pyromark Q96 ID; Qiagen). The clinical characteristics and treatment outcomes were analyzed in correlation with pathological data and K-ras mutation status (with Chi-square or Fisher exact test).

**Results:** There were 29 (46%) of 63 tumor tissues harbored K-ras mutation. Most mutations occurred at codon 12 in 28 of 29 (96.6%) patients and codon 13 in 1 (3.4%) patient. K-ras gene mutations tended to have poorer performance status, more TNM stage III-IV, poorly or undifferentiated histologic grade, positive surgical margin and metastases to regional lymph nodes than K-ras wild types, but these differences were not statistically significant. The overall survival (OS) of the whole population was 38.34 months (95% confidence interval of 21.28–55.41 months) and the 5-year overall survival rate was 24.8%. There was a trend of a non-statistically significant improvement in overall survival in patients whose tumor tissues displayed wild type K-ras over mutant K-ras with median OS 44.32 and 29.93 months, respectively \( p = 0.35 \).

**Conclusion:** We found moderately high prevalence of K-ras mutation in Thai ampullary carcinoma patients at 46%. Further evaluation of K-ras mutation in a larger population of ampullary carcinoma is warranted.