PO-0696
Mutational analysis by next generation sequencing in patients with biliary and pancreatic adenocarcinoma

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Purpose/Objective: In this retrospective study, next-generation exomic sequencing (NGS) was utilized in biliary and pancreatic adenocarcinoma samples to identify potential novel therapeutic targets that are not routinely assayed in the clinical setting.

Materials and Methods: Patients with confirmed pancreatic adenocarcinoma or cholangiocarcinoma were selected based on availability of tissues. A total of 236 somatic genes were surveyed in this review, including 3,230 exons and 47 introns at >900x mapping coverage. NGS reports were generated from 2011 to 2013 and reviewed retrospectively. Statistical analysis was performed using univariate analysis and Kaplan-Meier survival estimates.

Results: Seventeen (95%) of cases harbored at least one potentially actionable mutation, including BRACA (10.5%), CDKN2 (26.3%), FGFR (15.8%), KRAS (42.1%), MLL (26.3%), NRAS (5.3%), PIK3CA (10.5%), and TP53 (42.1%). Notably, KRAS mutations were found at a higher frequency in cholangiocarcinomas (87.5% vs 9.1%). Overall, the most frequent genomic alterations were found within KRAS (42.1%), TP53 (42.1%), CDKN2 (26.3%), and MLL (26.3%). All patients with SMAD alterations were also found to have concurrent KRAS mutations, which is consistent with reported literature. KRAS mutations most commonly involved codon 12, while the locations of SMAD and TP53 mutations were heterogeneous. In addition, concurrent mutations were found within genes that have been shown to potentially modulate or interact with KRAS-mediated signaling pathways, including CCND3, CDKN2A/B, and RB1. Alterations of BCOR, CCND3, CRKL, NFI1, STK11, and TSC1 were rare events (<6%). Furthermore, 95% of patients had multiple, novel mutations that have not been associated with pancreatic or biliary adenocarcinoma. The majority (63.2%) of patients had greater than five mutations identified. Median survival and 5-yr OS in cholangiocarcinoma cases was 30.1 months and 58.4%, 35.8%, 21.9% (χ²=7.881, P=0.005) respectively. The 1, 3, and 5 years overall survival rates of the ENI group and IFI group were 74.3%, 44.2%, 24.5% and 68.9%, 27.6%, 15.9% (χ²=4.402, P=0.168). In Cox multivariate analysis, clinical T stage, tumor location, different radiotherapy region were independent factors for the loco-regional control of all patients. One hundred and sixty-three patients developed failure after treatment and follow-up. Simple loco-regional failure was observed in 92 patients, alone distant metastases was observed in 36 patients, and both regional failure and distant metastases was observed in 35 patients. The 1,3, and 5 years total failure rates of ENI group and IFI group was 35.4%, 62.5%, 69.0% and 46.5%, 71.5%, 81.5% respectively (χ²=4.02, P=0.036). The 1,3, and 5 years loco-regional failure rates of ENI and IFI group were 29.9%, 48.4%, 50.0% and 39.6%, 62.1%, 71.4% respectively (χ²=8.638, P=0.003).

Conclusions: The elective nodal prophylactic irradiation of esophageal carcinoma with receiving definitive treatment could reduce loco-regional failures and improve local control. Maybe in order to improve the long-term survival.

PO-0697
Comparative study failure model esophageal carcinoma with elective nodal regional and involved field irradiation

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Purpose/Objective: The aim of this study is to compare the failure model between esophageal carcinoma patients receiving elective nodal prophylactic irradiation and involved-field irradiation, and to explore the reason of failure and influence factors of local recurrence.

Materials and Methods: From January 2006 to December 2012, 245 patients of esophageal carcinoma receiving definitive radiation therapy in our hospital were respectively analyzed. One hundred and twenty-six patients received elective nodal prophylactic irradiation(ENI),and the other 119 patients received involved-field irradiation(IFI).Failure patterns were analyzed after treatment and long-term follow up. Local regional failure included esophagus lesion remaining or relapse and regional lymph nodes recurrence. Distance metastases included distant organ metastases and distant lymph node metastases. Multivariate analysis was performed by the Cox proportional hazard model.

Results: The 1, 3 and 5 years loco-regional control rates of ENI group and IFI group were 72.5%, 52.8%, 50.6% and 58.4%, 35.8%, 21.9% (χ²=7.881, P=0.005) respectively. The 1,3 and 5 years overall survival rates of the ENI group and IFI group were 74.3%, 44.2%, 24.5% and 68.9%, 27.6%, 15.9% (χ²=4.402, P=0.168). In Cox multivariate analysis, clinical T stage, tumor location, different radiotherapy region were independent factors for the loco-regional control of all patients. One hundred and sixty-three patients developed failure after treatment and follow-up. Simple loco-regional failure was observed in 92 patients, alone distant metastases was observed in 36 patients, and both regional failure and distant metastases was observed in 35 patients. The 1,3, and 5 years total failure rates of ENI group and IFI group was 35.4%, 62.5%, 69.0% and 46.5%, 71.5%, 81.5% respectively (χ²=4.02, P=0.036). The 1,3, and 5 years loco-regional failure rates of ENI and IFI group were 29.9%, 48.4%, 50.0% and 39.6%, 62.1%, 71.4% respectively (χ²=8.638, P=0.003).

Conclusions: The elective nodal prophylactic irradiation of esophageal carcinoma with receiving definitive treatment could reduce loco-regional failures and improve local control. Maybe in order to improve the long-term survival.

PO-0698
Clinical outcomes of 4D CBCT-guided stereotactic body radiotherapy for inoperable hepatocellular carcinomas

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Purpose/Objective: To report the clinical outcomes of patients with inoperable hepatocellular carcinoma (HCC) receiving 4D cone-beam CT (4D CBCT) guided stereotactic body radiotherapy (SBRT) using lipiodal as tumor surrogate.

Materials and Methods: From Jan-2012 to Dec-2013, thirty