AB003. S003. *BRCA1/BRCA2* germline mutation carriers and sporadic pancreatic adenocarcinoma

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Background: The outcomes of sporadic pancreatic ductal adenocarcinoma (PDAC) patients with germline mutations of *BRCA1/BRCA2* remain unclear. The prognostic significance of *BRCA1/BRCA2* mutations on survival is not well established.

Methods: We performed targeted next-generation sequencing (NGS) to identify *BRCA1/BRCA2* germline mutations in resected sporadic PDAC cases from 2000 to 2015. Germline *BRCA* mutation-carriers were matched by age and tumor location to those with *BRCA1/BRCA2* wild-type genes from our institutional database. Demographics, clinicopathologic features, overall survival (OS) and disease-free survival (DFS) were abstracted from medical records and compared between the two cohorts.

Results: Twenty-two patients with sporadic cancer and *BRCA1* (n=4) or *BRCA2* (n=18) germline mutations and 105 wild-type patients were identified for this case-control study. *BRCA1/BRCA2* mutations were associated with inferior median OS (20.2 *vs.* 27.8 months, P=0.034) and DFS (8.4 *vs.* 16.7 months, P<0.001) when compared with the matched wild-type controls. On multivariable analyses a *BRCA1/BRCA2* mutation [hazard ratio (HR) =2.10, P<0.001], positive margin status (HR =1.72, P=0.021) and lack of adjuvant therapy (HR =2.38, P<0.001), were all independently associated with worse survival. Within the *BRCA1/BRCA2* mutated group, having had platinum-based adjuvant chemotherapy (n=10) was associated with better survival than alternative chemotherapy (n=8) or no adjuvant therapy (n=4) (31.0 *vs.* 17.8 *vs.* 9.3 months, P<0.001).

Conclusions: Carriers of *BRCA1/BRCA2* mutation with sporadic PDAC had a worse survival after pancreatectomy than their *BRCA* wild-type counterparts. However, platinum-based chemotherapy regimens were associated with markedly improved survival in patients with *BRCA1/BRCA2* mutations, with survival differences no longer appreciated with wild-type patients.

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