

CO-ORGANIZED EVENT

13th International Conference on Clinical Gastroenterology & Hepatology & 2nd International Conference on Digestive Diseases

December 07-08, 2017 Madrid, Spain

Size of pancreatic cancer predicts need for neoadjuvant therapy

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Purpose: Pancreatic cancer continues to have poor survival despite improvements in surgical care. Recent data suggest that the size of the pancreatic tumor may correlate with pathologic variables. Neoadjuvant therapy (NT) for resectable pancreatic cancer continues to be debated. There is little data to demonstrate survival benefit over patients who were treated with up front surgery (UFS) vs NT. We sought to correlate the size of the pancreatic tumor with pathologic variables and evaluate the role of neoadjuvant chemotherapy (NCT), neoadjuvant chemoradiation (NCRT), and UFS on survival in pancreatic cancer patients.

Methods: Utilizing the National Cancer Database we identified patients who underwent pancreatic resection for adenocarcinoma. Patients were then stratified based upon tumor size (>2cm or < 2cm) . Baseline comparisons of patient characteristics were made for continuous and categorical variables using Mann-Whitney U, Kruskal Wallis and Pearson's Chi-square test as appropriate. Survival analyses were performed using the Kaplan-Meier method. Multivariable cox proportional hazard models (MVA) were developed to identify predictors of survival. All statistical tests were two-sided and $\alpha < 0.05$ was considered significant.

Results: We identified 29,969 patients: 24,547 patients with tumors >2cm and 5,422 with tumors <2 cm. There were 1,259 patients treated with NCT (187 (15.8%) <2cm and 995 (84.2%) >2cm, 1,642 treated with NCRT (231 (15.1%) <2cm, 1,295 (84.9%) >2cm) and 28,605 UFS (5004 (18.4%) <2cm and 22,257 (81.6%) >2cm. Patients with tumors >2cm were more likely to have higher T -stage, $p < 0.001$, positive lymph nodes, $p < 0.001$, poor histologic grade, $p < 0.001$, and R1 resections, $p < 0.001$. The median survival for patients with tumors <2cm was 31.2 months compared to 22.3 months for those whose tumors were >2 cm, $p < 0.001$. In the <2cm cohort the median survival for NCT, NCRT and UFS was 37.9 months, 29.5 months and 28.5 months, $p = 0.1$. In the >2cm groups the median survival for NCT, NCRT, and UFS was 24.6 months, 25.4 months and 19.6 months, $p < 0.001$. MVA revealed that age, T-stage, N-stage, grade, tumor size >2cm, R0 resection, and neoadjuvant therapy were predictors of survival.

Conclusions: The size of pancreatic cancer correlates to pathologic stage and resultant overall survival. Additionally, tumors >2cm benefited from a neoadjuvant therapy. Utilizing this knowledge, we can more accurately predict those patients with pancreatic cancer who would benefit from a neoadjuvant approach.

Biography

Ahmed Salem is a resident physician of internal medicine at Florida State University – Sarasota Memorial Hospital in Sarasota, Florida, USA. His main area of interest is gastroenterology. Prior to joining his current training program, he spent over three years conducting clinical research that is focused on the clinical outcome associated with the different therapeutic modalities for pancreatic cancer. That included surgery, neoadjuvant/adjvant chemo and radio therapy. He also visited other areas of gastrointestinal oncological research including extrahepatic biliary malignancies and esophageal cancer. Ahmed Salem is looking forward to further specializing in gastroenterology after finishing his internal medicine residency program.

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