2020 Annual Meeting
August 2 - 4, 2020 | Mackinac Island, MI
Grand Hotel

12. NEOADJUVANT CHEMORADIATION, BUT NOT CHEMOTHERAPY REGIMEN, IS ASSOCIATED WITH IMPROVED PATHOLOGIC RESPONSE IN PANCREATIC CANCER

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Background: Localized pancreatic ductal adenocarcinoma (PDAC) is increasingly being treated with neoadjuvant therapy. We hypothesized that patients treated with FOLFIRINOX (FFX) would have a more pronounced pathologic response compared to those who received gemcitabine and nab-paclitaxel (GP).

Methods: A retrospective review was performed on patients who underwent neoadjuvant therapy followed by pancreatectomy for PDAC. Therapy effect was based on the College of American Pathologists scoring system and grouped as complete or near complete response (CNCR), partial response (PR), or no response (NR). Multivariate logistic regression was used to analyze the effect of chemotherapy regimen, number of completed cycles, administration of chemoradiation, and histologic differentiation on pathologic response.

Results: Ninety-nine patients underwent neoadjuvant therapy for resected PDAC. Sixty-four received either FFX or GP exclusively and had pathologic responses available for review. Fifty-six percent of patients received FFX and 44% received GP, with similar demographics and histologic differentiation. FFX patients received a median of five cycles compared to three cycles for GP patients ($p<0.01$). Twenty-two percent of FFX patients also received chemoradiation compared to 14% of GP patients ($p=0.39$). In comparing FFX and GP, there were no differences in rates of perineural invasion (78% vs 86%, $p=0.42$), lymphovascular invasion (64% vs 50%, $p=0.26$), or lymph node positivity (64% vs 75%, $p=0.34$). Receipt of chemoradiation was associated with decreased rates of positive lymph nodes (33% vs 78%, $p<0.01$), but did not impact perineural (75% vs 82%, $p=0.56$) or lymphovascular invasion (42% vs 61%, $p=0.23$).

Multivariate logistic regression comparing CNCR/PR versus NR demonstrated no association with the type of chemotherapy, number of cycles completed, or histologic differentiation as shown in the table. Chemoradiation was significantly associated with improved pathologic response. When comparing CNCR versus PR/NR, chemotherapy regimen and the number of cycles still had no association with pathologic response. Chemoradiation was again associated with improved response, while worsening histologic differentiation was associated with decreased pathologic response.

Conclusion: Degree of pathological response of PDAC seems to be associated with the administration of neoadjuvant chemoradiation, but not the neoadjuvant chemotherapy regimen.

CNCR/PR vs NR	OR	95% Conf Int	p-value
GP vs FFX (ref)	1.222	0.346 – 4.309	0.756
Number of cycles	1.030	0.795 – 1.333	0.825
Chemoradiation	10.498	1.120 – 91.997	**0.034**
Histologic differentiation	0.456	0.169 – 1.227	0.120
CNCR vs PR/NR	OR	95% Conf Int	p-value
GP vs FFX (ref)	0.747	0.064 – 8.654	0.816
Number of cycles	1.015	0.669 – 1.541	0.944
Chemoradiation	18.343	1.776 – 189.416	**0.015**
Histologic differentiation	0.060	0.004 – 0.916	**0.043**