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A pancreatic cancer multidisciplinary clinic: insights and outcomes

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ABSTRACT

Background: The purpose of this study was to evaluate the impact of a multidisciplinary clinic (MDC) on the treatment of pancreatic ductal adenocarcinoma. We hypothesized that an MDC would improve trial participation, multimodality therapy, neoadjuvant therapy, time to treatment, and survival.

Materials and methods: Pancreatic ductal adenocarcinoma cancer registry patients from 2008–2012 were analyzed. Outcomes of patients evaluated at the MDC were compared with patients not evaluated at the MDC (non-MDC).

Results: A total of 1408 patients were identified, 557 (40%) MDC and 851 (60%) non-MDC. MDC were more likely to be an earlier stage than non-MDC ($P = 0.0005$): I – 4% *versus* 4%, II – 54% *versus* 43%, III – 11% *versus* 9%, and IV – 32% *versus* 44%. MDC were younger than non-MDC (68 *versus* 70; $P = 0.005$); however, younger (<75) and older (≥75) patients were more likely to receive treatment in MDC than non-MDC. MDC were more likely to participate in trials than non-MDC (28% *versus* 14%; $P < 0.0001$). MDC were more likely to receive treatment than non-MDC (90% *versus* 71%; $P < 0.0001$). MDC were more likely to receive two (38% *versus* 24%; $P < 0.0001$) or three (12% *versus* 9%; $P = 0.02$) therapies than non-MDC. No difference in time to first treatment in MDC than non-MDC (0.95 *versus* 0.92 mo; $P = 0.69$). After adjusting for age, stage, and therapy, there was a trend; however, no statistical difference in disease-free survival (hazard ratio [HR] of non-MDC *versus* MDC 0.80; 95% confidence interval [95% CI] 0.61–1.05; $P = 0.11$), time to recurrence (HR of non-MDC *versus* MDC 0.69; 95% CI 0.45–1.04; $P = 0.07$), or overall survival (HR of non-MDC *versus* MDC 0.81; 95% CI, 0.62–1.07; $P = 0.13$).

Conclusions: Patients evaluated in an MDC were more likely to receive any treatment, receive multimodality therapy, neoadjuvant therapy, and participate in a clinical trial.

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Introduction

The treatment of pancreatic cancer is complex and often necessitates the use of multiple modalities of therapy. Most patients regardless of stage require the services of multiple subspecialties including surgery, gastroenterology, medical and radiation oncology, nutrition, and palliative care. Multidisciplinary clinics (MDC) have become increasingly prevalent and allow several specialties to collaborate and develop consensus recommendations in a more cost-efficient manner. Multidisciplinary care has been widely accepted as improving outcomes in the treatment of cancer patients; however, the impact of MDC has only recently been investigated [1-5].

The MDC at the University of Pittsburgh Medical Center (UPMC) was established so that a range of specialists could evaluate patients with pancreatic ductal adenocarcinoma (PDA) within a single day to maximize exposure and efficiency for patients and create a centralized liaison for patient convenience. The purpose of this study was to evaluate the impact of a MDC on the clinical care recommendations, treatment plan, and outcomes in patients with PDA. Additionally, we sought to evaluate if there was faster delivery of care, increased utilization of multimodality therapy, increased participation in clinical trials, and improved survival in patients seen in MDC.

Methods

The pancreatic MDC was established at UPMC in 2008. After institutional review board approval (PRO1480181), the records of all consecutive patients in the UPMC system with PDA from 2008–2012 were analyzed from the UPMC cancer registry data. A prospective database of all patients evaluated in the MDC was separately maintained for patients seen within the clinic. The records of 1408 patients with PDA were identified from the cancer registry for inclusion in this study. The cancer registry contains the data inputted into the National Cancer Database from UPMC. These patients were identifiable and cross-referenced with patients in our MDC database. Patients were then classified as MDC (in both databases) and non-MDC (only in cancer registry database) by adding a column "0" non-MDC and "1" MDC to the cancer registry database.

Outcomes of patients evaluated at the MDC were compared to patients not evaluated at the MDC. Demographic data, participating providers, preoperative staging, clinical recommendations, treatment plan, time to first treatment by stage, distance to MDC, participation in clinical trials, outcomes, and survival data were analyzed. Stage was according to National Comprehensive Cancer Network (NCCN) criteria used in the National Cancer Database. For all surgical patients (even those that received neoadjuvant therapy), pathologic stage was used, and, for nonsurgical patients, clinical stage at diagnosis was used which was determined by cross-sectional imaging ± endoscopic ultrasound.

MDC is a single site, single day clinic held each week for the patients primary outpatient visit within the system. The surgical oncology division coordinates this clinic. However, all MDC cases were presented at multidisciplinary conference that was attended by surgical oncology, medical oncology, gastroenterology, radiation oncology, palliative care service, and dieticians. Additionally, social workers and behavioral medicine specialists are available as needed. The patient's diagnosis, medical information, radiology, and pathology were discussed and consensus treatment recommendation was made. Attention to open clinical trials for all stages of disease was made, and patients were able to have a therapy plan by all disciplines before leaving. All subsequent visits are with individual practitioners and not within the MDC.

Statistical methods

Subjects evaluated at the MDC were compared with subjects who were not seen at the MDC using the *t*-test for all continuous variables. The chi-square test was used to test for

Table 1 – Demographic comparison between pancreatic cancer patients seen in the MDC and patients not evaluated within the MDC (non-MDC).

Variables	All		Non-MDC		MDC		*P* value
	n	Mean (STD)	*n*	Mean (STD)	*n*	Mean (STD)	
Age at diagnosis	1408	68.83 (11.08)	851	69.5 (11.44)	557	67.8 (10.44)	0.004
Distance to MDC (miles)	1407	44.16 (76.08)	851	46.58 (90.93)	556	40.46 (44.46)	0.09
	n	%	*n*	%	*n*	%	*P* value
Male	723	51	419	49	291	52	0.28
Stage							0.0005
1A	19	1	12	1	7	1	
1B	38	3	23	3	15	3	
2A	238	17	134	16	104	19	
2B	421	30	227	27	194	35	
3	138	10	78	9	60	11	
4	543	39	368	43	175	31	
NA	11	7	9	1	2	3	

NA = not available; STD = standard deviation.