Continuing Educational Needs of US-Practicing Oncologists Managing Patients with Pancreatic Cancer

W Cerenzia, S Hwang, K Mamlouk, B Mirakhur, B L Musher

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Abstract

Purpose

Most patients with pancreatic ductal adenocarcinoma (PDAC) are diagnosed with advanced disease and are ineligible for potentially curative surgical resection. This study was conducted to identify practice patterns among US medical oncologists in the management of patients with advanced PDAC and ascertain differences among oncologists in an academic setting compared to those practicing in a community setting.

Methods

A case-vignette survey with multiple-choice and Likert-type questions was designed to elicit clinical management decisions and assess challenges to managing patients with PDAC. The survey featured two vignettes: 1) a 55 year-old male with a pancreatic tail mass and numerous liver metastases 2) a 77 year-old male with a pancreatic head mass, biliary obstruction, and metastases to the liver and peritoneal cavity.

Results

Responses were collected from 150 medical oncologists, 69% practiced in a community setting and 31% were academicians. A lack of consensus was demonstrated in sequencing therapy and few (<10%) recommended a clinical trial in either vignette. Academicians reported a higher percentage of patients with PDAC enrolled in clinical trials compared to community oncologists, however, 36% of all oncologists rated ‘lack of access to clinical trials’ as a significant barrier. Further, academic oncologists reported significantly higher familiarity with pathophysiology and newer PDAC therapies compared to community oncologists.

Conclusion

This study identified a lack of consensus in management decisions and gaps between treatment selection and national guidelines. The results from this study are intended to describe continuing educational needs of oncologists that can be targeted by future continuing medical education.

INTRODUCTION

As the third-leading cause of cancer-related mortality in the United States (US), pancreatic cancer is expected to account for over 55,000 new cases and greater than 44,000 deaths in the US in 2018, with 94% of new cases presenting as tumors of exocrine tissue of the pancreas [1]. Since there are no reliable early warning signs of PDAC, most patients are diagnosed with advanced disease and are ineligible for potentially curative surgical resection. Given the aggressive and heavily symptomatic nature of advanced PDAC, oncologists are faced with considering both standard antineoplastic therapies as well as investigational agents available through clinical trials when managing patients with PDAC.

Randomized controlled trials have shown that combination chemotherapy is superior to single agent therapy in the first-line treatment of PDAC, with FOLFIRINOX and gemcitabine plus nab-paclitaxel both demonstrating superior response rates, progression-free survival and overall survival, when compared to gemcitabine alone in patients

with stage IV PDAC [2,3]. However, since FOLFIRINOX and gemcitabine plus nab-paclitaxel have not been compared head-to-head, the superiority of one regimen over the other has not been established and either is acceptable. Therefore, clinicians consider various factors, including a patient's Eastern Cooperative Oncology Group (ECOG) performance status (PS), Karnofsky performance status (KPS), comorbidities, logistics of administration, and toxicity profiles when making treatment recommendations to their patients. The only regimen that has conclusively been shown to improve overall survival in patients who have progressed on first-line gemcitabine-based therapy is 5-FU plus liposomal irinotecan which led to FDA approval in metastatic PDAC [4]. Additionally, given the poor outcomes of patients with PDAC, national guidelines emphasize the importance of considering clinical trials as a management option [5].

This study utilized a clinical patient vignette survey instrument to provide insight into the current practice patterns of US-practicing medical oncologists in managing patients with advanced PDAC. The clinical vignettes provided study respondents with patient cases detailing simulated presentation with follow-up questions designed to capture management decisions. For this study, a survey with two clinical vignettes of patients with advanced PDAC was developed to assess oncologist management decisions. Additional questions were developed to identify familiarity with current and emerging therapies, knowledge of PDAC pathophysiology and barriers that impede optimal practice. The results of the study are intended to demonstrate educational needs that can be targeted by future continuing medical education (CME).

MATERIAL AND METHODS

Survey Design and Distribution

For the purpose of investigating the practice patterns of US-practicing medical oncologists who manage PDAC, a survey instrument featuring two clinical patient vignettes was developed and fielded in December 2016. Clinical vignettes are widely used to assess processes of care in clinical practice and have been compared to other methods of measurement, including standardized patient encounters and chart abstraction, and also have proven a valid and comprehensive method for measuring practice patterns in an outpatient setting [6-9].

The first clinical vignette presented a 55-year-old man with progressive abdominal pain and weight loss, and computed tomography (CT) showing a 3 cm mass in the tail of the pancreas with multiple hypodense liver masses. The second clinical vignette presented a 77-year-old man with fatigue, painless jaundice, low-grade fever, and CT imaging showing intrahepatic and extrahepatic ductal dilation, a 3 cm mass in the head of the pancreas abutting both venous and arterial vasculature, two liver hypodensities, and numerous peritoneal deposits. Each clinical vignette was followed by multiple-choice questions pertaining to the management of the patient's PDAC. The clinical-vignette survey underwent pilot testing among two practicing medical oncologists to examine whether the instrument assessed the intended constructs, to detect key omissions, and to identify items that may be ambiguous.

The clinical-vignette survey was distributed by email to 2,027 medical oncologists practicing in the United States. Oncologists' email information was obtained either from a proprietary database of physicians who have "opted-in" to participate in previous survey-based studies, from a physician email contact list purchase, or from publicly available contact information. Oncologists were sent up to 6 email invitations to participate in the survey. Participation in the study was voluntary and physicians faced no penalty in not completing the survey. By accessing the link in the survey invitation and completing the survey, respondents provided consent and were notified that the data would be de-identified and evaluated in aggregate, and their individual responses would not be identifiable. A survey quota was established to limit the number of survey completions to the first 150 oncologists who met the inclusion criteria for the study. Inclusion criteria for this study ensured all respondents were US-practicing medical oncologists who are currently treating patients with PDAC. Incomplete survey entries were removed from the dataset prior to analysis. Response criteria was set to include oncologists who treat one or more patients with PDAC per month. For comparison of practice patterns by practice setting, oncologists were asked to report whether they see the majority of their patients in a community (private practice or community hospital) or academic (university or academic hospital) setting. A small monetary incentive of $50 USD was offered for those who met the inclusion criteria and completed the survey. Respondents accessed the survey through the online survey software Qualtrics (Provo, UT, USA. http://www.qualtrics.com).

Statistical Analysis

The survey data were collected using Qualtrics software. A

statistical analysis software package (IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY) was utilized for data extraction, transformation, and statistical analyses. Descriptive statistics, such as frequencies and means, were calculated on all questions in the survey, to examine overall responses. Inferential statistics, including T-tests and chi-square analysis, were conducted to analyze and interpret differences between oncologists who report seeing the majority of their patients in a community setting as compared to oncologists who report seeing the majority of their patients in an academic Differences between groups were considered statistically significant at $P < .05$.

RESULTS

Sample characteristics

Responses were collected from 150 US-practicing medical oncologists; 104 (69%) respondents self-identified as community practicing oncologists and 46 (31%) self-identified as academic practicing oncologists. Community practicing oncologists reported a higher overall patient load per week than academic practicing oncologists (mean of 95 vs 72 patients, respectively, $P = .004$); however, academic oncologists reported treating more patients with PDAC per month than community oncologists (mean of 19 vs 13 patients, respectively, $P = .017$). The community oncologists reported being in practice significantly longer than the academic oncologists (27 vs 20 years, respectively, $P < .001$) (Table 1).

Management of patients with pancreatic cancer

The first clinical vignette was designed to elicit oncologists' approach for evaluating suspected metastatic PDAC and selection of evidence-based treatment. Respondents were presented with a case of a 55-year-old man with progressive abdominal pain and weight loss but remained fully active, whose computed tomography (CT) showed a 3 cm mass in the tail of the pancreas with multiple hypodense liver masses. In establishing a diagnosis for this patient, nearly all responding oncologists (99%) chose either an image-guided core needle biopsy of the liver mass or an endoscopic ultrasound (EUS)-guided biopsy of the pancreas mass. In addition to a biopsy, 57% of respondents ordered a serum CA 19-9 and 25% ordered a serum carcinoembryonic antigen (CEA) testing.

For this patient who was subsequently diagnosed with stage IV PDAC, denied baseline neuropathy, and expressed an interest for aggressive treatment, 77% of oncologists selected FOLFIRINOX as their first-line regimen, while 18% opted for gemcitabine plus nab-paclitaxel. Only one respondent chose clinical trial enrollment for this patient. After the patient responds to and then progresses while on FOLFIRINOX, 83% of community oncologists and 63% of academic oncologists opted for gemcitabine plus nab-paclitaxel ($P = .009$) as second-line therapy. As compared with community oncologists, academic oncologists were more likely to recommend a clinical trial (11% vs 2%, $P = .028$) or FOLFOX/CAPEOX (7% vs 0%, $P = .028$) for the patient at this point in management (Table 2).

The second clinical vignette was designed to assess oncologists' approach to managing a patient with ascending cholangitis and suspected metastatic PDAC. In this vignette, a 77-year-old man presents with fatigue, painless jaundice, and a low-grade fever. CT imaging shows intrahepatic and extrahepatic ductal dilation, a 3 cm mass in the head of the pancreas abutting both venous and arterial vasculature, two liver hypodensities, and numerous peritoneal deposits. His performance status is somewhat compromised, but still good (ECOG PS 1). For initial management of this patient, 75% of respondents recommended endoscopic retrograde cholangiopancreatography (ERCP) with placement of a biliary stent and EUS-guided biopsy while 17% of respondents chose a liver biopsy rather than ERCP/EUS (Figure 1).

For the second case patient, who is older and less active than the patient presented in the first vignette, 89% of oncologists selected either gemcitabine plus nab-paclitaxel or FOLFIRINOX; and none chose a clinical trial. As compared to academic oncologists, community oncologists were more likely to select gemcitabine plus nab-paclitaxel (70% vs 50%, $P = .018$) and less likely to select FOLFIRINOX (19% vs 39%, $P = .01$). Once this patient progresses on first-line gemcitabine plus nab-paclitaxel, with worsening of his neuropathy, but preservation of good PS, 37% of respondents selected 5-fluorouracil plus liposomal irinotecan in alignment with NCCN guidance (NCCN, 2017) while 21% of academic and 18% of community oncologist respondents elected to continue a gemcitabine-based regimen. Despite progressing neuropathy, 14% of respondents chose an oxaliplatin-containing regimen. Furthermore, only 7% of academic oncologists and 3% of community oncologists would refer this patient to a clinical trial. (Table 3).

Oncologists' Familiarity with Treatment Options and Sequencing of Therapy

Slightly over one-half (56%) of respondents rated themselves either 'very' or 'extremely' likely (on a scale from 1 to 5, with a score of 4 being 'very likely' and 5 being 'extremely likely') to consider treatment sequencing before initiating first-line treatment for patients with metastatic PDAC. The vast majority of respondents felt 'very' or 'extremely' confident in their ability to choose appropriate regimens for stage IV PDAC, with a higher proportion expressing confidence in their first-line recommendation when compared to their second-line recommendation (90% vs 70% P < .001).

Although very few respondents recommended a clinical trial over standard therapy in the clinical vignette presentations, a higher proportion of academic oncologists, compared to community oncologists, reported they 'often' or 'always' discuss and seek out clinical trials for their patients before initiating either first (59% vs 39%, P = .029) or second-line therapy (70% vs 49%, P = .02) (Figure 2). Academic oncologists also reported that a significantly higher percentage of their patients with stage IV PDAC were enrolled in clinical trials as compared to community oncologists (30% vs 14%, P < .001). However, 36% of both community and academic oncologists rated 'lack of access to clinical trials' as either a 'very' or 'extremely' significant barrier to optimal management of patients with PDAC.

Oncologists rated their overall familiarity with currently available agents for the treatment of PDAC (on a scale from 1 to 5, with a score of 5 being 'extremely familiar'). When analyzing mean familiarity scores, both academic and community oncologists rated themselves most familiar with nab-paclitaxel (mean of 4.46 and 4.48, respectively). Familiarity with liposomal irinotecan was rated lower by both groups (mean of 3.59 for academic and 3.63 for community) and community oncologists cited significantly lower familiarity than academic oncologists with pembrolizumab (mean of 3.43 community and 3.91 academic, P = .018). In regard to familiarity with new or emerging agents for PDAC, academic oncologists cited significantly higher familiarity across all agents as compared to community oncologists (P < .05) (Table 4).

Most oncologists rated themselves 'very' or 'extremely' familiar with the mechanism of action (MOA) of nab-paclitaxel (89%) and liposomal irinotecan (63%), however, academic oncologists rated themselves significantly more familiar with liposomal irinotecan than community oncologists (mean of 4.00 vs 3.63, P = .048) (Table 5). Moreover, 46% of academics and 33% of community respondents rated the MOA of an agent as 'very' or 'extremely important' when selecting treatment for patients with metastatic pancreatic cancer.

Furthermore, a higher percentage of academic oncologists, as compared to community oncologists, correctly recognized the composition of the desmoplastic stroma (91% vs 76%, respectively, P = .028). However, there was an overall lack of familiarity with whether stromal involvement significantly increases the likelihood of chemoresistance in pancreatic cancer, with 30% of oncologists being unsure about the contribution of stromal involvement in chemoresistance and 22% believing it does not significantly contribute.

Table 1

Demographics of survey participants

	Academic oncologists (n=46)	Community oncologists (n=104)
Years since medical school graduation, mean (SD)	20 (10)	27 (10)
Patients seen per week, mean (SD)	72 (52)	95 (39)
Patients treated per month for PDAC, mean (SD)	19 (20)	13 (13)
Patients with stage IV PDAC who enroll in a clinical trial, % (SD)	30 (28)	14 (19)

Table 2

First- and second-line treatment selection for advanced PDAC - Clinical vignette #1

A 55-year-old man presents with progressive abdominal pain and weight loss, and computed tomography (CT) shows a 3 cm mass in the tail of the pancreas with multiple hypodense liver masses.						
	First-line selection			Second-line selection		
Treatment Option	Academic	Community	p-value	Academic	Community	p-value
FOLFIRINOX (or modified FOLFIRINOX)	78%	76%	NS	4%	3%	NS
Gemcitabine + nab-paclitaxel	11%	21%	NS	63%	83%	**.009**
Gemcitabine + capecitabine	0%	0%	NS	2%	0%	NS
Gemcitabine + erlotinib	0%	0%	NS	4%	2%	NS
Gemcitabine + platinum agent	0%	1%	NS	2%	2%	NS
Gemcitabine alone	0%	0%	NS	2%	2%	NS
5-FU (or capecitabine) alone	0%	0%	NS	0%	0%	NS
FOLFOX or CAPEOX	7%	1%	NS	7%	0%	**.028**
5-FU + leucovorin + liposomal irinotecan	0%	0%	NS	4%	4%	NS
FOLFIRI	0%	1%	NS	0%	2%	NS
Clinical trial	2%	0%	NS	11%	2%	**.028**
Hospice care	N/A	N/A	N/A	0%	0%	NS
Other	0%	0%	NS	0%	1%	NS

Table 3

First- and second-line treatment selection for advanced PDAC - Clinical vignette #2

A 77-year-old man presents with fatigue, painless jaundice, and a low-grade fever. CT imaging shows intrahepatic and extrahepatic ductal dilation, a 3 cm mass in the head of the pancreas abutting both venous and arterial vasculature, two liver hypodensities, and numerous peritoneal deposits.

	First-line selection			Second-line selection		
Treatment options	Academic	Community	p-value	Academic	Community	p-value
FOLFIRINOX (or modified FOLFIRINOX)	39%	19%	**.01**	4%	7%	NS
Gemcitabine + nab-paclitaxel	50%	70%	**.018**	11%	2%	**.028**
Gemcitabine + capecitabine	2%	2%	NS	2%	6%	NS
Gemcitabine + erlotinib	2%	1%	NS	2%	6%	NS
Gemcitabine + platinum agent	0%	1%	NS	0%	0%	-
Gemcitabine alone	2%	4%	NS	7%	4%	NS
5-FU (or capecitabine) alone	0%	0%	NS	4%	14%	NS
FOLFOX or CAPEOX	2%	3%	NS	13%	6%	NS
5-FU + leucovorin + liposomal irinotecan	2%	0%	NS	37%	38%	NS
FOLFIRI	0%	0%	NS	11%	13%	NS
Clinical trial	0%	0%	NS	7%	3%	NS
Hospice care	N/A	N/A	N/A	0%	2%	NS
Other	0%	0%	NS	2%	0%	NS

Table 4

Oncologist familiarity with current and emerging therapies for PDAC

Mean level of familiarity with therapies for PDAC

Rated on a 5 point scale (1: not at all familiar; 5: extremely familiar)

Agent	Academic, mean	Community, mean	p-value
Nab-paclitaxel	4.46	4.48	NS
Pembrolizumab (PD-1 inhibitor)	3.91	3.43	**.018**
Liposomal irinotecan	3.59	3.63	NS
Durvalumab (PDL-1 inhibitor)	3.35	2.55	**.001**
Chimeric antigen receptor T-cell therapy	3.07	2.16	**< .001**
PEGPH20 (hyaluronidase)	2.85	1.83	**< .001**
GVAX (GM-CSF gene vaccine)	2.65	1.91	**.001**
Demcizumab (anti-DLLW monoclonal Ab)	2.26	1.61	**.003**
CRS-207 (mesothelin targeting vaccine)	2.17	1.52	**.005**

Table 5

Oncologist familiarity with mechanism of action of therapies for PDAC

Mean level of familiarity with MOA

Rated on a 5 point scale (1: not at all familiar; 5: extremely familiar)

Agent	Academic, mean	Community, mean	p-value
Nab-paclitaxel	4.37	4.16	NS
Liposomal irinotecan	4.00	3.63	**.048**

Figure 1

Test selection to aid in the diagnosis of PDAC Oncologists were asked to select all tests they would recommend for a 55-year old patient presenting with CT showing a 3 cm mass in the tail of the pancreas with multiple hypodense liver masses. ^Evidence-based answer.

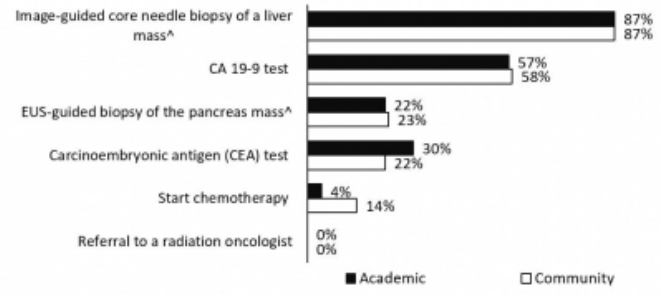
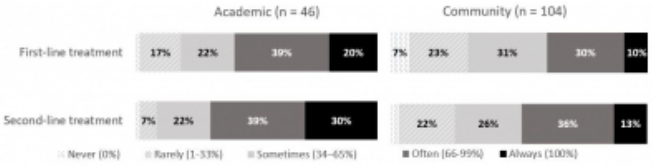


Figure 2

Utilization of PDAC clinical trials and oncologist perceptions regarding access to trials Oncologists were asked how often they discuss and seek out clinical trial options for their patients with stage IV pancreatic cancer before initiating either first-line or second-line therapy.



DISCUSSION

This case-vignette study provides insight into current US-practicing oncologists' management of patients with stage IV PDAC. These results provide data to support the focus of future continuing medical education to address the practice variation and ultimately meet the educational needs of oncologists in managing patients with PDAC. In addition to identifying overall practice patterns, a secondary goal of the study was to identify differences in practice decisions between oncologists practicing in a community setting and oncologists practicing in an academic setting. While little variation was observed between the two groups with regard to patient management choices, differences were noted specific to self-reported familiarity with MOA of current agents, familiarity with emerging agents for PDAC and discussion of and referral to PDAC clinical trials.

Although a pathological diagnosis is not required prior to surgical resection when there is high clinical suspicion of PDAC, it is recommended before the administration of chemotherapy in patients suspected of having metastatic disease [5]. The vast majority of responding oncologists

recognized this need for the patient presented in the first clinical vignette and would conduct either an image-guided core needle biopsy of the liver mass or an EUS-guided biopsy of the pancreas mass. Approximately 13% selected only a biopsy of the pancreas, which is acceptable for pursuing a tissue diagnosis, although NCCN guidelines recommend a biopsy of the metastatic site [5].

NCCN guidelines recommend placement of a plastic or metal stent by ERCP before initiating systemic therapy when biliary obstruction is present [5]. Approximately 20% of responding oncologists in our study did not select biliary decompression as the first step in managing the patient in the second clinical vignette, who presented with biliary obstruction and evidence of cholangitis. While a liver biopsy or laparoscopy may establish stage IV disease, neither should be prioritized above biliary decompression in a patient with biliary obstruction and cholangitis [5], however, 17% of academic respondents and 15% of community respondents opted to perform only a liver biopsy.

FOLFIRINOX and gemcitabine plus nab-paclitaxel have both been shown to yield superior response rates, progression-free survival, and overall survival, when compared to gemcitabine alone in patients with stage IV PDAC [2,3]. However, in the absence of a randomized-controlled trial comparing these two chemotherapy combinations head-to-head, the superiority of one regimen over the other has not been established. When presented with the first clinical vignette, a 55-year-old man with a good ECOG PS, more respondents chose FOLFIRINOX rather than gemcitabine plus nab-paclitaxel for first-line therapy. For the second clinical vignette that presented a 77-year-old man with an ECOG PS of 1, the majority of oncologists selected gemcitabine plus nab-paclitaxel rather than FOLFIRINOX. The difference between responses to the two clinical scenarios may be due to the patient in the second clinical vignette being older. Of note, clinical trials using FOLFIRINOX have not included patients older than 75 [2], whereas the randomized controlled trial that yielded FDA approval for nab-paclitaxel in combination with gemcitabine in first-line treatment of metastatic PDAC included patients older than 75 and patients with ECOG PS of 2 [3].

Currently, the only regimen with a category 1 recommendation in NCCN as second-line therapy is 5-FU plus liposomal irinotecan in patients who received gemcitabine-based therapy first line [5]. However, despite the recommendation, there was notable variability seen in the respondents' treatment selection of second-line therapy, particularly as compared with first-line therapy selections in both clinical vignettes. In the first clinical vignette, the patient responded to first-line FOLFIRINOX and ultimately progressed, by which time he had mild chemotherapy-induced neuropathy. When presented with second-line treatment options, most respondents recommended a gemcitabine-based regimen. Although data have not demonstrated superiority of a particular gemcitabine-based regimen in patients whose disease has progressed on 5-FU-based therapy, a prospective, non-randomized study by Portal et al. suggests that gemcitabine plus nab-paclitaxel is effective in patients with metastatic PDAC after progression on FOLFIRINOX [10]. Although the patient's cancer had clearly progressed on 5-FU-based therapy, a small percentage of respondents continued 5-FU-based chemotherapy, a recommendation not supported by published data or NCCN guidelines. In second clinical vignette, respondents were asked to select second-line therapy for a 77-year-old patient who had a good ECOG PS but was suffering from painful neuropathy after progression on gemcitabine-based therapy. Results from the NAPOLI-1 trial, a multicenter randomized control trial showed a survival benefit of 5-FU plus liposomal irinotecan over single-agent 5-FU and single agent irinotecan in patients with stage IV PDAC who had progressed on first-line gemcitabine-based therapy [4]. Thirty-seven percent of respondents recommended 5-FU plus liposomal irinotecan, and 43% recommended other 5-FU-based regimens. While other 5-FU-based regimens, such as single-agent 5-FU, single-agent capecitabine, FOLFIRI, FOLFOX, or CAPEOX are acceptable alternatives according to NCCN, oxaliplatin would be problematic in this particular patient who already has painful neuropathy after first-line therapy. Because FOLFIRINOX, FOLFOX, or CAPEOX would carry an unacceptably high risk of worsening neuropathy, these therapies should be considered less acceptable options for this patient. Similarly, keeping the patient on the same regimen he received first-line (nab-paclitaxel plus gemcitabine) would possibly be ineffective. Finally, it is important to note that, although NCCN clearly states a preference for clinical trials in both the first and second-line settings, there was a low percentage of respondents that recommended a clinical trial in either first or second-line setting. Academic oncologists reported more frequent discussions about clinical trials with their patients, as well as more frequent trial enrollment of their patients than community practice oncologists. However, over one-third of

both community and academic oncologists rated 'lack of access to clinical trials' as a very or extremely significant barrier to optimal management of patients with PDAC.

Respondents demonstrated variability in their awareness of current and emerging therapies and PDAC pathophysiology. While academic oncologists were more familiar than community oncologists, there was an overall lack of self-reported familiarity with new and emerging agents for PDAC. Not surprisingly, respondents rated themselves more familiar with agents that are currently available, such as nab-paclitaxel and liposomal irinotecan, as opposed to newer and emerging therapies. Furthermore, while both community and academic respondents self-reported high familiarity with the MOA of nab-paclitaxel, variation was noted in reported familiarity with the MOA of liposomal irinotecan among community and academic oncologists, with academic oncologists reporting higher familiarity than community oncologists. Academic oncologists also appeared to be more familiar with the composition of the desmoplastic stroma in PDAC, which consists predominantly of cancer-associated fibroblasts, inflammatory cells, small blood vessels, and extracellular matrix [11]. Although desmoplastic stromal involvement contributes to the challenges of treating PDAC and increases likelihood of chemoresistance [11], both groups of respondents reported a lack of familiarity with the role of the desmoplastic stroma in chemoresistance and with emerging agents to address the tumor microenvironment in PDAC.

STUDY LIMITATIONS

This study used a clinical-vignette survey as a surrogate measure of oncologists' practice decisions, knowledge, and attitudes and therefore has certain limitations. The two clinical-vignette scenarios which were used do not cover the full spectrum of patient scenarios. Furthermore, because participants self-selected to respond to a survey invitation, a bias may have occurred toward oncologists specifically interested in the management of PDAC. Analysis was conducted to identify differences between oncologists responding more quickly to the invitation to participate as compared to those who responded after reminder invitations were sent. No significant differences in responses based on the when the survey was completed were noted. Respondents were given a small honorarium to complete the study, which could influence participation rates and responses. Another limitation is the use of self-reported data, which might be biased toward socially desirable responses.

CONCLUSION

In summary, in identifying the current practices and self-reported knowledge, attitudes and barriers of US-practicing medical oncologists, this clinical-vignette study identified multiple areas of focus for future CME initiatives pertaining to the management of metastatic PDAC. Given the pace of clinical advances in oncology, CME that is focused on specific gaps to optimal patient management is critical to helping oncologists translate the latest evidence into practice. Continuing medical education that is focused to both academic and community oncologists should continue to focus on the latest evidence for treatment sequencing in accordance with national guidelines as well as linking patients to clinical trials being conducted in advanced PDAC. Further education should continue to review the pathophysiology of PDAC, provide information on the mechanism of action of therapies for the treatment of PDAC highlighting proper sequencing, and the importance of choosing appropriate first line chemotherapy as it may impact efficacy in the 2nd line setting. Educational materials should also present the latest data on emerging treatments for PDAC, and emphasize need to offer patients access to available clinical trials.

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Author Information

Wendy Cerenzia
CE Outcomes, LLC
Birmingham, Alabama

Sharon Hwang
CE Outcomes, LLC
Birmingham, Alabama

Khalid Mamlouk
Ipsen Biopharmaceuticals, Inc.
Basking Ridge, New Jersey

Beloo Mirakhur
Ipsen Biopharmaceuticals, Inc.
Basking Ridge, New Jersey

Benjamin L. Musher
Baylor College of Medicine
Houston, Texas