Acta Scientific CANCER BIOLOGY (ISSN: 2582-4473)

Volume 9 Issue 2 February 2025

Review Article

Ethics of Informed Consent with Comprehension of Pancreatoduodenectomy for Pancreatic Ductal Adenocarcinoma

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Received: May 29, 2025

Published: June 25, 2025

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Abstract

Pancreatic ductal adenocarcinoma (PDAC) is a lethal malignancy with limited treatment options. Communicating risks and benefits in detail related to each treatment option as a part of the informed consent process is crucial to actively engage patients in their care process. Older age and emotional distress after diagnosis may impair cognitive impairment and compromise their autonomy in making an informed decision. Involvement of a multi-disciplinary team in the care process and supplementing various treatment option discussions with visual illustrations may help in simplifying complex information and improving patient understanding.

Keywords: Pancreatic Ductal Adenocarcinoma; Informed Consent; Pancreatoduodenectomy; Whipple; Ethics

Introduction

Pancreatic ductal adenocarcinoma with dismal prognosis

Pancreatic ductal adenocarcinoma (PDAC) carries a poor prognosis with 15-20% of patients having operable disease at diagnosis [1,2]. Amongst these patients that do not have metastases, surgical resection has demonstrated to prolong overall survival compared to non-surgical treatment. The best treatment strategy to prolong survival includes multimodal therapy – combination of systemic therapy, surgical resection and / or radiation therapy [3-6]. Despite multimodal therapy, the median 5-year survival is 25%. The 5-year overall survival rate is approximately 8-10% with surgical resection alone [4,7]. Approximately, 40% of patients are unable to complete systemic therapy after surgical resection [8]. This is the reason many academic centers consider systemic therapy prior to surgical resection (neoadjuvant therapy) even for resectable PDAC, which is now supported by the NCCN guidelines [9]. During neoadjuvant therapy, approximately 30% of patients do not make it to surgical resection due to disease progression or increased toxicity of systemic therapy resulting in deterioration of their functional status [8]. This is in part due to the relative resistance of PDAC to chemotherapy, advocating the need for novel chemotherapeutic regimens.[10] The standard chemotherapeutic regimens available to treat this disease have significant toxicity. Since the disease frequently affects the elderly population, it is challenging for patients to tolerate the chemotherapeutic agents. The disease prognosis with available treatment options including details of surgical resection is complex and challenging for a patient to comprehend all at once after hearing the diagnosis of "cancer" for the first time. This further complicates the process of informed consent. In this essay, we will explore the ethical considerations involved in obtaining informed consent for pancreatoduodenectomy (PD), including the information for patients, the challenges in communicating the risks and benefits, and the importance of patient autonomy and their decision-making capacity.

Process of informed consent

Informed consent is a foundation of medical ethics. It ensures that patients are completely aware about the risks, benefits, alternatives (including no treatment) and details of a proposed treatment option. Comprehension of the complex available treatment

for this dismal disease will allow them to make an informed decision about pursuing available treatment options. To complicate this further, patients are encouraged to enroll in clinical trials owing to the poor prognosis associated with the standard of care treatment for this lethal disease. Now imagine, how easily can a patient without the background in medicine get overwhelmed with a new diagnosis of a lethal cancer and understanding its treatment options including the purpose of a clinical trial and the rationale for the respective clinical trial. Understanding this is difficult for medical students and not easy for junior surgical trainees, leave alone a patient without a background in medicine. For complex procedures like the Whipple procedure, also known as pancreaticoduodenectomy (PD), informed consent is especially important due to the procedure's complexity and associated morbidity and mortality that increases with age [11].

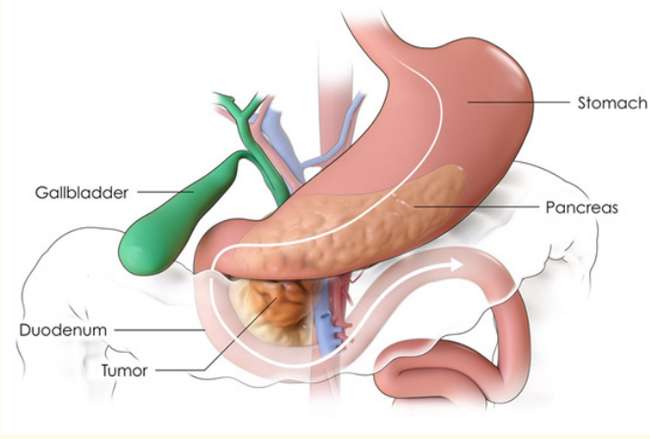

Figure 1: Normal anatomy with pancreatic tumor, and relationship between stomach, pancreas, biliary system and portomesenteric vasculature.

Risks, perioperative recovery and details of pancreatoduodenectomy

Pancreatoduodenectomy is a surgical operation used to treat tumors of the duodenum, distal bile duct, and pancreas, as well as other diseases affecting these organs. It involves the removal of a portion of the pancreas, bile duct, duodenum, gallbladder and a portion of the stomach. Given the complexity of the procedure and the potential risks involved, obtaining informed consent is crucial. Figure 1-4 represents normal hepatopancreatobiliary anatomy, organs resected during PD, post-resection anatomy and reconstructed anatomy (anastomoses). Risks related to PD include, but not limited to, bleeding, infection, injury to nearby structures, need for further procedures, reoperation, aborting the operation, tumor recurrence, positive margin, anastomotic leak or stricture (biliary, pancreatic and gastric anastomosis to the small bowel), chyle leak, pancreatitis, delayed gastric emptying, ileus, bowel obstruction, cardiopulmonary complications, venous thrombosis, readmission, death [11-13]. It carries a morbidity of 30-40% and a mortality of 2% [14,15]. The rate of morbidity increases significantly for ≥90-year-old patients [11,17]. Perioperative care including preoperative exercise and nutrition as well as postoperative care (in-hospital and after discharge) is discussed in great details [18]. The median length of hospital stay is 5-7 days, and increases to nearly 11 days for ≥90-year-old patients [19]. Multiple randomized studies have demonstrated the effectiveness of protein shakes preoperatively to decrease the risk of infectious complications by optimizing the nutritional status [20]. Patients suffering from PDAC generally have some degree of weight loss and are malnourished. Preoperative exercise and nutrition improves their functional and nutritional status to withstand the treatment for PDAC [21].

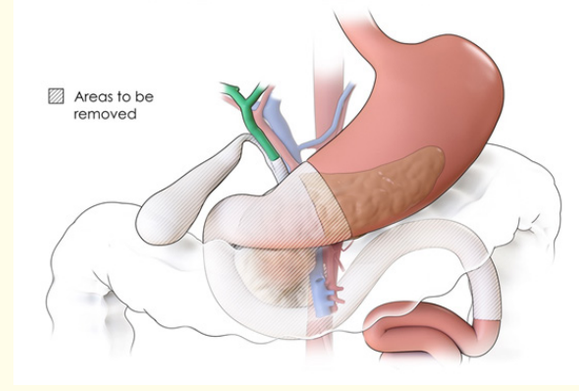

Figure 2: White shaded area depicts the organs resected during a classic pancreatoduodenectomy.

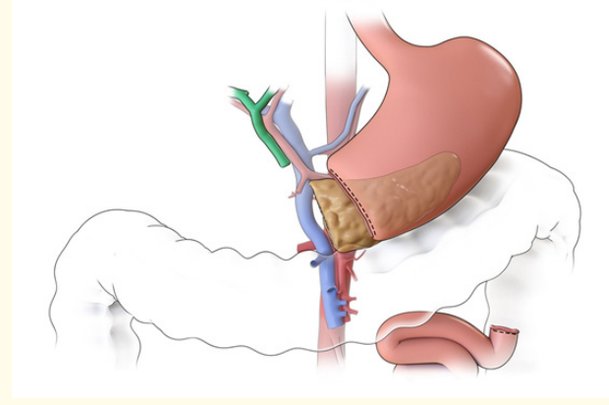

Figure 3: Post-resection anatomy after classic pancreatoduodenectomy.

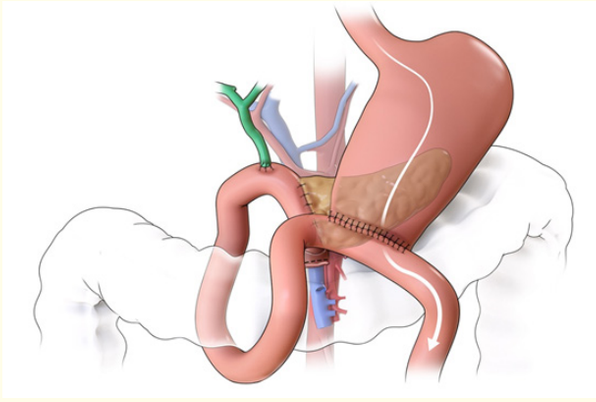

Figure 4: Reconstructed anatomy with pancreatic, biliary and gastric anastomosis.

Evidence to support limited patient understanding

A small qualitative study to assess the understanding of patients diagnosis of PDAC and treatment options identified various misconceptions with many patient believing that there were no alternatives to pursuing aggressive treatment for this lethal disease [22]. In a landmark study, patients with incurable lung or colorectal cancer receiving palliative chemotherapy were surveyed, only to realize that most patients incorrectly believed their regimens to be potentially curative [23]. Studies of this nature have resulted in attention to a wide body of literature revealing limitations in the ability of physicians to communicate with patients about complex medical problems and decision-making matters [24]. With the Central Pancreas Consortium (CPC), we have surveyed 152 patients (response rate = 39%) with PDAC, where majority of patients incorrectly believed that surgery was somewhat likely or very likely to cure their cancer (89%), despite perceived communication from physicians to be excellent by the same-group of patients (unpublished data - in the process of publication).

Patient autonomy

Patient autonomy is the right of competent adults to make their decision about their own lives and bodies without undue influence from their healthcare providers. It is a crucial ethical principle for obtaining informed consent, and for ensuring that patients are actively involved in their diagnosis and treatment. It emphasizes that competent patients have the right to pursue or refuse a treatment or procedure, after completely comprehending the risks and benefits involved, even if it is against medical advice or against a physician's well-thought out treatment plan in good faith. Especially for patients undergoing PD, it is important that they have a clear and accurate understanding of the risks, benefits, alternatives and details as described previously. Illustrations of the operation certainly help improve patient's understanding of the anatomy, complexity and potential complications involved with the surgical resection that they may consent to.[25] Surgeons can facilitate this process by using clear and simple terms, and allowing patients ample opportunity to ask questions and clarify their doubts.

Emotional impact

The emotional impact of discussion of PDAC prognosis on patients may result in distracted or decreased understanding of the details of PD. The news of PDAC itself can be devastating, and further discussing the details of PD with its resultant morbidity and mortality, can easily get the patients overwhelmed with fear, anxiety, and uncertainty about their future. It is crucial that healthcare providers, especially surgical oncologists, approach the patient with compassion and multi-disciplinary care that allows the patient to process the information and discuss it with other like-minded physicians who have the same common goal of offering the best care for the patient. It is also important to assess the patients social situation in terms of family, friends and relatives to understand what kind of support system can they rely on, which may dictate perioperative management and assistance after discharge.

Cognitive function

This disease often occurs in patients above the age of 60-years. Not uncommonly, patients above this age may demonstrate some degree of cognitive decline including various type of dementia [26]. It is important for the physician to take into consideration the patient's decision-making capacity, that includes a patient's ability to understand information relevant to the disease and various treatment options including PD. It is important for the patient to appreciate the consequences of their decision, and should be able to communicate their decision in a consistent manner with a reasonable rationale. These patients encountered with the decision to undergo various complex treatment options, including PD, may be under notable emotional stress with inadequate social support, which may further affect their ability to understand the problem adequately thereby impacting their decision-making capacity. Many cancer centers and organizations have multiple services, including social workers, who can help identify support and further enhance the ability of the patient's decision-making capacity [27]. Additionally, when patient visits multiple physicians as part of a multi-disciplinary team, it further helps them understand the problem and discussion between physicians may further clarify the patient's true cognitive function and decision-making capacity.

Conclusion

Informed consent for pancreatoduodenectomy is a complex and challenging process that requires a thorough understanding of pancreatic ductal adenocarcinoma prognosis and available treatment options. Healthcare providers are key players to lead this discussion with clarity by effectively communicating, providing accurate information, respect the patient's autonomy and assessing the patient's cognitive function as well as social support system. Approaching the process of informed consent with compassion as well as willingness to provide the necessary time and support the patients need to make an informed decision about their care is vital.

Funding Information

Research reported in this publication was supported by the National Cancer Institute of the National Institutes of Health under Award Number K12 CA237806 from the Emory K12 Clinical Oncology Training Program and the Georgia CTSA ULI TR002378 (awarded to MMS). The Content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Additional support in part by the Contardi Research Fellowship and the acknowledged parties had no role in study design, data collection, analysis and interpretation of data, manuscript writing and the decision to submit the manuscript for publication.

Bibliography

1. Stathis A and Moore MJ. "Advanced pancreatic carcinoma: current treatment and future challenges". *Nature Reviews Clinical Oncology* 7.3 (2010): 163-172.

2. Ducreux M., *et al*. "Cancer of the pancreas: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up†". *Annals of Oncology* 26 (2015): v56-v68.

3. Versteijne E., *et al*. "Neoadjuvant Chemoradiotherapy Versus Upfront Surgery for Resectable and Borderline Resectable Pancreatic Cancer: Long-Term Results of the Dutch Randomized PREOPANC Trial". *Journal of Clinical Oncology* 40.11 (2022): 1220-1230.

4. Neoptolemos John P., *et al*. "A Randomized Trial of Chemoradiotherapy and Chemotherapy after Resection of Pancreatic Cancer". *New England Journal of Medicine* 350.12 (2004): 1200-1210.v

5. Ghaneh P., *et al*. "Immediate surgery compared with short-course neoadjuvant gemcitabine plus capecitabine, FOLFIRINOX, or chemoradiotherapy in patients with borderline resectable pancreatic cancer (ESPAC5): a four-arm, multicentre, randomised, phase 2 trial". *The Lancet Gastroenterology and Hepatology* 8.2 (2023): 157-168.

6. Sakaguchi T., *et al*. "The past, present, and future status of multimodality treatment for resectable/borderline resectable pancreatic ductal adenocarcinoma". *Surgery Today* 50.4 (2020): 335-343.

7. Oettle H., *et al*. "Adjuvant chemotherapy with gemcitabine and long-term outcomes among patients with resected pancreatic cancer: the CONKO-001 randomized trial". *JAMA* 310.14 (2013): 1473-1481.

8. Sohal D., *et al*. "SWOG S1505: Results of perioperative chemotherapy (peri-op CTx) with mfolfirinox versus gemcitabine/nab-paclitaxel (Gem/nabP) for resectable pancreatic ductal adenocarcinoma (PDA)". *JCO* 38.15 (2018): 4504-4504.

9. Tempero MA., *et al*. "Pancreatic Adenocarcinoma, Version 2.2021, NCCN Clinical Practice Guidelines in Oncology". *Journal of the National Comprehensive Cancer Network* 19.4 (2021): 439-457.

10. Shah MM. "A Single-Arm Phase II Clinical Trial of Gemcitabine, Cisplatin, and Nab-Paclitaxel As Neoadjuvant Therapy for Pancreatic Ductal Adenocarcinoma". *Clinical Trials* (2024).

11. Meltzer RS., *et al*. "Does Major Pancreatic Surgery Have Utility in Nonagenarians with Pancreas Cancer?" *Annals of Surgical Oncology* 28.4 (2021): 2265-2272.

12. Bassi C., *et al*. "The 2016 update of the International Study Group (ISGPS) definition and grading of postoperative pancreatic fistula: 11 Years After". *Surgery* 161.3 (2017): 584-591.

13. Wente MN., *et al*. "Delayed gastric emptying (DGE) after pancreatic surgery: A suggested definition by the International Study Group of Pancreatic Surgery (ISGPS)". *Surgery* 142.5 (2007): 761-768.

14. Wente MN., *et al*. "Postpancreatectomy hemorrhage (PPH)–An International Study Group of Pancreatic Surgery (ISGPS) definition". *Surgery* 142.1 (2007): 20-25.

15. Crist DW., *et al*. "Improved hospital morbidity, mortality, and survival after the Whipple procedure". *Annals of Surgery* 206.3 (1986): 358-365.

16. Winter JM., *et al*. "1423 pancreaticoduodenectomies for pancreatic cancer: A single-institution experience". *Journal of Gastrointestinal Surgery* 10.9 (2006): 1199-1210.

17. Kim SY., *et al*. "The outcomes of pancreaticoduodenectomy in patients aged 80 or older: a systematic review and meta-analysis". *HPB* 19.6 (2017): 475-482.

18. Lassen K., *et al*. "Guidelines for Perioperative Care for Pancreaticoduodenectomy: Enhanced Recovery After Surgery (ERAS®) Society Recommendations". *World Journal of Surgery* 37.2 (2013): 240-258.

19. Meltzer RS., *et al*. "Does Major Pancreatic Surgery Have Utility in Nonagenarians with Pancreas Cancer?" *Annals of Surgical Oncology* 28.4 (2021): 2265-2272.

20. Waitzberg DL., *et al*. "Postsurgical infections are reduced with specialized nutrition support". *World Journal of Surgery* 30.8 (2006): 1592-1604.

21. Gianotti L., *et al*. "Nutritional support and therapy in pancreatic surgery: A position paper of the International Study Group on Pancreatic Surgery (ISGPS)". *Surgery* 164.5 (2018): 1035-1048.

22. Wancata LM., *et al*. "The patient's perspective: a qualitative study of individual experience with decision-making, treatment, and recovery for resectable pancreatic cancer". *Support Care Cancer* 30.3 (2022): 2581-2589.

23. Weeks JC., *et al*. "Patients' expectations about effects of chemotherapy for advanced cancer". *The New England Journal of Medicine* 367.17 (2012): 1616-1625.

24. Patak L., *et al*. "Improving patient-provider communication: a call to action". *The Journal of Nursing Administration* 39.9 (2009): 372-376.

25. Munigala S., *et al*. "Helping Patients Understand Pancreatic Cancer Using Animated Pancreas Patient Education With Visual Formats of Learning". *Pancreas* 51.6 (2022): 628.

26. Manly JJ., *et al*. "Estimating the Prevalence of Dementia and Mild Cognitive Impairment in the US: The 2016 Health and Retirement Study Harmonized Cognitive Assessment Protocol Project". *JAMA Neurology* 79.12 (2022): 1242-1249.

27. Rosenzweig A., *et al*. "Management of Patients With Pancreatic Cancer Using the "Right Track" Model". *Oncologist* 28.7 (2023): 584-595.