

Pancreatectomy

Abstract

Surgery is a vital component of pancreatic cancer treatment that must be completed to attain cure potential. Multimodal treatment for pancreatic cancer must combine both surgery and chemotherapy to attain curative potential. Despite advancements in surgical procedures and perioperative care, it is still considered a high-risk surgery with a high rate of postoperative morbidity. To generate solid and uniform outcome references after pancreatic-duodenectomy, several criteria have been established. The novel notion behind using the benchmark concept to surgery is to analyze the best possible outcomes in a well-defined low-risk patient group to generate meaningful comparative data. Longer procedures have been required as a result of more effective chemotherapy and recent developments in surgical abilities, pushing the boundaries of respectability. Multivisceral resections, with or without resection of major mesenteric arteries, are now being performed in an increasing number of patients, and they are associated with improved overall survival and/or patient-reported outcomes.

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Introduction

A Pancreatic Resection (PR) is a surgical surgery in which a part of the pancreas is removed. The procedure is also known as a “pancreatectomy”. It’s the sole way to treat pancreatic and periampullary malignancies, as well as one of the few ways to treat premalignant benign disorders. Multimodal treatment for pancreatic cancer must combine both surgery and chemotherapy in order to attain curative potential [1]. It is critical to carry out treatments in the correct order. Surgical resection or neoadjuvant followed by resection are both options. Extended procedures, such as mesenteric vasculature restoration and multi-visceral resections, are also being considered. Despite advancements in surgical procedures and perioperative care, it is still regarded as a high-risk treatment with significant postoperative morbidity and mortality, particularly after Pancreatic Duodenectomy (PD) [2]. PD is often used to treat a wide range of conditions, particularly in people with pancreatic adenocarcinoma [3].

Patients receiving PR in low-volume hospitals have considerably higher morbidity and mortality rates, lengths of stay, and expenses than patients receiving PR in high-volume hospitals [2]. According to population-based research conducted over the previous 25 years [2]. According to a recent study on average, 75 % of Italian facilities that treat pancreatic cancer patients do one resection every year [4]. Treatments performed in low-volume facilities have unfavorable consequences, such as an increase in non-resection surgery mortality and a higher risk of having a non-resection operation, according to the study. Patients who undergo pancreas surgery must be

treated safely, according to healthcare regulators. However, most countries have yet to establish a consolidated policy on pancreatic surgery [5]. In countries where such a policy has been adopted, a minimum caseload requirement is the backbone of hospital selection; however, the number of procedures per center per year varies significantly.

The argument is that there may be a relationship between volume and outcome, with higher-volume pancreatic centers having better outcomes [6]. The reasons for this link are complicated, but they are most likely related to the hospital support system, surgeon and facility experience, and access to additional expert services, all of which contribute to differences in complication rescue rates. With the increasing popularity of aggressive pancreatic surgery (e.g., extended lymphadenectomy, venous and arterial resection), as well as the growing use of minimally invasive, robotic, and other technologies in pancreatic surgery (e.g., irreversible electroporation), benchmarks are becoming more important [7].

Benchmark in Pancreatic Surgery

Benchmarking is a widely used tool for quality improvement in the manufacturing industry and economy, but its use in medicine has been irregular and equivocal [8]. The novel idea behind applying the benchmark concept to surgery is to assess the best possible outcomes in a well-defined low-risk patient cohort in order to establish meaningful reference values for comparisons, such as between centers or overtime, or to assess the implementation of novel surgical techniques. This methodology has been applied in recent surgical studies to establish reference statistics in liver resection, transplantation, and esophagectomy

[9]. It has been reported a pancreatic surgical benchmark from 23 high-volume worldwide facilities that executed 6186 PD cases over three years, with 2375 (38%) low-risk patients forming the benchmark cohort. Adenocarcinoma (1091, 46%) was the most common cause of PD, followed by ampullary carcinoma (327, 13.8%), and cholangioma (327, 13.8%). The majority of individuals with an oncological PD diagnosis (55%) were in stage T3 disease. Patients with adenocarcinoma received neo-adjuvant therapy in 14% of cases (1091), while adjuvant therapy was used in 65% of cases. There was a reduced prevalence of benign illnesses including Intraductal Papillary Mucinous Neoplasia (197, 8.3%), chronic pancreatitis (47, 2%), and other cystic lesions (38, 8.3%). (2020) conducted a comprehensive review of published quality indicators for pancreatic surgical performance, classifying them into many categories, the most common of which were those established by Donabedian [7]. Structure domain metrics describe the environment in which care is delivered and what is necessary inside that environment or system. Process metrics are concerned with how care is delivered and can provide patient-level information. Metrics that are clinically relevant are those that are linked to healthcare outcomes. Those involved in healthcare organisations and processes should be included in the drive to improve healthcare outcomes. However, ensuring that structural or procedural modifications have a positive impact on patient

happiness, health, and healthcare costs is crucial [10]. Because quality outcomes are rarely explicitly tracked, the term “indicators” is often used in the healthcare industry. Indicators are thought to represent changeable factors that influence outcomes.

Current Resection Development

Following the reorganization of treatment for pancreatic cancer specialized centers with large patient volumes for single surgeons and hospitals, postoperative morbidity and death have improved considerably. Extended operations that include resection/reconstruction of main mesenteric arteries with Multivisceral Resections (MVR) are now being provided to more patients. As a result of this shift, postoperative morbidity has increased, but not death. This treatment extension for the surgical component has resulted in a clinical improvement that has been proven. Patient selection for these extensive surgeries, as well as prospective registration of survival and patient-reported outcomes, are all essential for future advancement [2]. Neoadjuvant chemotherapy is becoming increasingly widespread in the United States, while upfront surgery is more usual in Europe. Various adjuvant regimens have been investigated in accordance with the European standard, and it was recently shown that combining Capecitabine with Gemcitabine increased median survival to 27 months [2].

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