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Surgery: Current Research

Short Communication

Pancreatic Surgery

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ABSTRACT

Pancreatic cancer is treated in a multimodal manner, with surgery being a critical component that must be completed in order to achieve cure potential. In order to achieve curative potential, multimodal treatment for pancreatic cancer must include both surgery and chemotherapy. Despite developments in surgical procedures and perioperative care, it is still regarded as a high-risk procedure with significant postoperative morbidity. Several standards have been established to create strong and standardized outcome references after pancreatic-duodenectomy. The new idea behind using the benchmark concept to surgery is to evaluate the best possible results in a well-defined low-risk patient group in order to produce meaningful comparative values. More effective chemotherapy, along with recent advances in surgical skills, has resulted in longer procedures that have pushed the limits of resectability. Multivisceral resections, with or without resection of major mesenteric arteries, are now being performed in a growing number of patients, with higher overall survival and/or patient-reported outcomes.

Keywords: Resection; Chemotherapy; Benchmarks

INTRODUCTION

Pancreatic Resection (PR) is a surgical procedure that removes a portion of the pancreas. It's also referred to as a "pancreatectomy." It is the only cure for pancreatic and periampullary cancers, as well as one of the few treatments for premalignant benign diseases. In order to achieve curative potential, multimodal treatment for pancreatic cancer must include both surgery and chemotherapy. The order in which interventions are carried out is crucial. Surgical removal or neoadjuvant chemotherapy followed with resection. Extended surgeries that include reconstruction of major mesenteric vasculature and multivisceral resections are also being evaluated [1]. Despite advances in surgical procedures and perioperative care, it is still considered a high-risk surgery with significant postoperative morbidity and mortality, particularly following Pancreatico Duodenectomy (PD) [2]. PD is commonly used to treat a variety of disorders, especially in individuals with pancreatic adenocarcinoma [3].

Over the last 25 years, population-based studies have shown that patients receiving PR in low-volume hospitals have much greater morbidity and mortality rates, durations of stay, and costs than patients getting PR in high-volume hospitals [2]. According to a recent study by Balzano et al. [4] (2016), 75% of Italian institutions operating on pancreatic cancer patients execute one resection each year on average [4]. The study also found that treatments carried out in low-volume institutions had negative repercussions, such as an increase in non-resectional surgery mortality and a higher likelihood of having a non-resectional operation. Regulators in the healthcare system must ensure that patients who require pancreas surgery receive safe treatment. However, most countries have yet to create a pancreatic surgery centralized policy. A minimum caseload requirement is the mainstay of hospital selection in nations where such a policy has been enacted, albeit the number of procedures per center per year varies substantially among countries [5].

The argument for this is that there may be a link between volume and outcome, with high-volume pancreatic centers having better outcomes [6]. The reasons for this link are complex, but they most likely have to do with the hospital support system, surgeon and hospital experience, and availability to other expert services, leading in variances in complication rescue rates. With the rising 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 (e.g., irreversible electroporation) in pancreatic surgery, benchmarks are becoming more important [7].

BENCHMARK IN PANCREATIC SURGERY

Benchmarking is a commonly utilized method for quality improvement in the manufacturing industry and economy, but its application in medicine has been more ambiguous and sporadic [8]. The novel idea behind applying the benchmark concept to surgery is to evaluate the best achievable results in a well-defined low-risk patient cohort in order to establish meaningful reference values

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for comparisons, such as between centers or over time, or to assess the implementation of novel surgical techniques. In recent surgical research, this methodology has been used to establish reference figures in liver resection, transplantation, and esophagectomy [9]. Sánchez- Velázquez et al. [9] (2019) published a benchmark in pancreatic surgery from 23 high-volume international facilities that performed a total of 6186 PD cases over a three-year period, with 2375 (38%) low-risk patients composing the benchmark cohort. Adenocarcinoma was the leading cause of PD in over half of the cases (1091, 46%), followed by ampullary carcinoma (327, 13.8%), and cholangioma (327, 13.8%). The majority of patients having an oncological indication for PD (55%) were in stage T3 illness. 14% of patients with adenocarcinoma (1091) received neo-adjuvant therapy, while 65% received adjuvant therapy. The prevalence of benign disorders such as Intraductal Papillary Mucinous Neoplasia (197, 8.3%), chronic pancreatitis (47, 2%), and other cystic lesions (38, 8.3%) was lower. Ou et al. [7] (2020) conducted a systematic evaluation of published quality measurements for pancreatic surgery performance, categorizing quality measures into multiple areas, the most common of which were those proposed by Donabedian [7]. Structure domain metrics indicate the setting in which care is provided and define what is required within that setting or system. Process metrics are related to how care is given and can give patient-level data. Clinically relevant metrics are those that relate to healthcare outcomes. The imperative to enhance healthcare outcomes should include those connected to healthcare organization and procedures. It is nevertheless critical to guarantee that structural or procedural changes have a positive impact on patient satisfaction, health, and healthcare costs [10]. Because quality outcomes cannot usually be monitored directly, the term "indicators" is commonly used in healthcare. Indicators are assumed to represent modifiable elements that contribute to outcomes.

CURRENT RESECTION DEVELOPMENT

Postoperative morbidity and mortality have improved dramatically following the rearrangement of treatment for pancreatic cancer disciplinary centers with high patient volume for single surgeons and hospitals. More patients have been offered extended surgeries that combine resection/reconstruction of major mesenteric arteries with Multivisceral Resections (MVR). Postoperative morbidity, but not death, has increased as a result of this change. This extension for the surgical element of treatment has resulted in verified clinical improvement. For future advancement, patient selection for these comprehensive operations, as well as prospective registration of survival and patient-reported outcomes, is required [2]. In the United States, neoadjuvant chemotherapy is becoming more popular, but upfront surgery is more common in Europe. Different adjuvant regimens have been examined in line with the European method, and it was recently discovered that adding Capecitabine to Gemcitabine increased median survival to 27 months [2].

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