ORIGINAL ARTICLE

Pan-European survey on the implementation of minimally invasive pancreatic surgery with emphasis on cancer

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Abstract

Background: Minimally invasive (MI) pancreatic surgery appears to be gaining popularity, but its implementation throughout Europe and the opinions regarding its use in pancreatic cancer patients are unknown.

Methods: A 30-question survey was sent between June and December 2014 to pancreatic surgeons of the European Pancreatic Club, European-African Hepato-Pancreato-Biliary Association and 5 European national pancreatic societies. Incomplete responses were excluded.

Results: In total, 237 pancreatic surgeons responded. After excluding 34 incomplete responses, 203 responses from 27 European countries were included. 164 (81%) surgeons were employed at a university hospital, 184 (91%) performed advanced MI surgery and 148 (73%) performed MI distal pancreatectomy. MI pancreatoduodenectomy was performed by 42 (21%) surgeons, whereas 9 (4.4%) surgeons had performed more than 10 procedures. Robot-assisted MI pancreatic surgery was performed by 28 (14%) surgeons. 63 (31%) surgeons expected MI distal pancreatectomy for cancer to be inferior to open distal pancreatectomy concerning oncological outcomes. 151 (74%) surgeons expected to benefit from training in MI distal pancreatectomy and 149 (73%) were willing to participate in a randomized trial on this topic.

Conclusions: MI distal pancreatectomy is a common procedure, although its use for cancer is still disputed. MI pancreatoduodenectomy is still an uncommon procedure. Specific training and a randomized trial regarding MI pancreatic cancer surgery are welcomed.

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Introduction

Minimally invasive (MI) approaches to gastrointestinal diseases are on the rise worldwide, but evidence from randomized controlled trials, especially in cancer patients, is lacking.[1] Since the first publication on laparoscopic pancreatic surgery in 1994, its introduction into surgical practice has been rather slow. Although the popularity of laparoscopic pancreatic surgery seems to increase in recent years, there is no data available on the implementation of this approach.

Outcomes after distal pancreatectomy for malignant disease are still poor and it is unclear whether laparoscopy could improve postoperative outcomes.[2] Several recent systematic reviews have shown superior outcomes of laparoscopic distal pancreatectomy compared to open surgery concerning blood loss, spleen-preservation and length of hospital stay.[3–8] However, a recently published systematic review showed that only 5 comparative cohort studies on laparoscopic versus open distal pancreatectomy exclusively for cancer were available.[9] In this systematic review, as in many reports, patients considered for the laparoscopic approach were highly selected.[9] Furthermore, except for hospital stay, nationwide propensity score matched analyses failed in confirming obvious benefits of laparoscopy.[10,11] However, laparoscopic distal pancreatectomy is being increasingly utilized and, therefore, it is interesting to investigate the attitudes and future prospects of surgeons towards this procedure.[8] What is the general opinion regarding laparoscopic distal pancreatectomy for pancreatic cancer? What is the incidence of this procedure and what do surgeons need to enable the implementation of the laparoscopic approach for cancer in their center? And how often is this procedure performed via a robot-assisted approach?

Similarly, comparative literature on laparoscopic versus open pancreatoduodenectomy is limited. A recently published matched case–control study showed that patient selection plays an important role.[12] Nevertheless, after case-matching, the laparoscopic approach was associated with a significantly shorter postoperative hospital stay, but at the detriment of longer operative time and possibly increased costs.[12,13] A recent systematic review of cohort studies concluded that laparoscopic pancreatoduodenectomy is feasible and safe in selected patients, when operated by expert surgeons trained in both laparoscopic and pancreatic surgery.[14] Again, since randomized controlled trials are lacking, selection bias will undoubtedly have influenced these outcomes.

In the past decade, the amount of publications on robot-assisted distal pancreatectomy and pancreatoduodenectomy has been increasing significantly.[15,16] This MI approach to pancreatic surgery is evolving and is suggested to have some benefits as well as disadvantages compared with laparoscopic and open pancreatic surgery.[15] However, the utilization of robot-assisted pancreatic surgery in Europe is unknown.

The benefits of a MI pancreatic surgery are still unclear and it is unknown how many European surgeons perform this type of surgery, how many procedures they perform each year and whether these procedures are also performed in cancer patients. For this purpose, a specific survey was developed, with the aim to give insights in attitudes and prospects towards these procedures and its implementation, to investigate whether specific training on MI distal pancreatectomy is desired and to identify European pancreatic surgeons who would like to participate in a future randomized controlled trial focusing on MI pancreatic surgery in patients with pancreatic cancer.

Methods

Survey target group

An online survey was sent to all surgeon members of the European Pancreatic Club, the European-African Hepato-Pancreato-Biliary Association and the national pancreatic societies of the United Kingdom, Italy, Spain, the Netherlands and Belgium using SurveyMonkey® (www.surveymonkey.com). Since the survey was sent by these associations and the membership lists are confidential and known to be partially overlapping, the total number of invitees could not be retrieved. The survey was conducted between June and December 2014 and consisted of 30 questions. Non-responders received up to two reminders. Incomplete responses were excluded.

Investigated parameters

Investigated parameters included hospital type, country of origin, details of surgical experience (surgery, open pancreatic surgery, MI pancreatic surgery), attitudes towards MI pancreatic surgery, essential elements of MI pancreatic surgery for cancer, views on training in laparoscopic pancreatic surgery and interest in future randomized trials on MI distal pancreatectomy for cancer.

Definitions

MI surgery was defined as laparoscopic or robot-assisted surgery. Advanced MI gastrointestinal surgery was defined as any MI procedure of the gastrointestinal tract beyond gallbladder surgery, appendectomy or inguinal hernia repair surgery.

Statistical analysis

Variables were processed and analysed using IBM SPSS Statistics for Microsoft Windows 22.0th Edition (SPSS, Armonk, NY, USA). Data were reported as number with percentage or as median with interquartile range (IQR). Sensitivity analyses were performed; 1) by excluding countries with > p75% relative response rate (defined as number responders per 5 million inhabitants) and 2) by excluding the 9 Western European countries as defined by the United Nations Statistical Commission (http://unstats.un.org/unsd/methods/m49/m49regin.htm, accessed March 15, 2015).

Results

Demographics

Responses were received from 237 pancreatic surgeons, of which 34 were excluded due to incompleteness, leaving 203 responses available for analysis. Responders originated from 27 European countries, as shown in Fig. 1. The majority of responders were from Spain (n = 29), the United Kingdom (n = 28), the Netherlands (n = 28), Italy (n = 23) and Germany (n = 13). Half of all responders (n = 100 (49%)) were employed at a center in which at least 40 pancreatic head resections are performed annually.