



Achieving high quality standards in laparoscopic colon resection for cancer: A Delphi consensus-based position paper



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ABSTRACT

Aim: To investigate the rate of laparoscopic colectomies for colon cancer using registries and population-based studies. To provide a position paper on mini-invasive (MIS) colon cancer surgery based on the opinion of experts leader in this field.

Methods: A systematic review of the literature was conducted using PRISMA guidelines for the rate of laparoscopy in colon cancer. Moreover, Delphi methodology was used to reach consensus among 35 international experts in four study rounds. Consensus was defined as an agreement $\geq 75.0\%$. Domains of interest included nosology, essential technical/oncological requirements, outcomes and MIS training.

Results: Forty-four studies from 42 articles were reviewed. Although it is still sub-optimal, the rate of MIS for colon cancer increased over the years and it is currently $>50\%$ in Korea, Netherlands, UK and Australia. The remaining European countries are un-investigated and presented lower rates with highest variations, ranging 7–35%. Using Delphi methodology, a laparoscopic colectomy was defined as a “colon resection performed using key-hole surgery independently from the type of anastomosis”. The panel defined also the oncological requirements recognized essential for the procedure and agreed that when performed by experienced surgeons, it should be marked as best practice in guidelines, given the principles of oncologic surgery be respected (R0 procedure, vessel ligation and mesocolon integrity).

Conclusion: The rate of MIS colectomies for cancer in Europe should be further investigated. A panel of leaders in this field defined laparoscopic colectomy as a best practice procedure when performed by an experienced surgeon respecting the standards of surgical oncology.

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Introduction

Colorectal cancer (CRC) is the second most frequent diagnosed cancer with an incidence of about 450,000 new cases in Europe and 100,000 new patients/year in the US [1,2].

Currently, upfront surgical resection remains the standard of care for non-metastatic tumors. Over the last three decades several progresses were made for improving treatment, the survivals and quality of life of cancer patients; the main innovation being the outbreak of laparoscopic procedures in 1991 [3,4].

Initial concerns, including those related to a long training, the development of port-site metastasis, the sustainability or the adherence to surgical oncology principles [5–9], were subsequently surmounted and in recent years a number of studies recognized the short-term functional benefits and the equivalent long-term oncological results of this approach. In accordance with these evidences, few national health authorities recommended the use of mini-invasive surgery (MIS) as the preferred option for suitable patients [9].

Surprisingly, despite these evidences and efforts, a number of population-based studies report low rates of MIS colectomies in European countries and in the UK [9,10].

The European Society of Surgical Oncology, ESO, aims to develop standards for cancer patients through its core values, as well as its education activities, in homogenization of skills, quality healthcare and ultimately qualification.

In line with such mission, a core group of ESO members aimed this study to investigate the actual rate of MIS for colon cancer in different continents and to provide position statements in the form of a “White Paper” (a report provided by authoritative experts that informs readers concisely about a this issue) on laparoscopic colectomy. As a matter of fact, this manuscript was designed to outline the adoption of laparoscopic colectomy for cancer globally, but also to provide an authoritative report based on experts consensus supporting a common definition of MIS colectomy (what is and what is not), its technical requirements, the oncological items that should be assured and the path of training to achieve a gold standard. Experts were interviewed using a modified Delphi technique. Named after the Oracle at Delphi, this approach is an internationally validated group facilitation that searches for a

consensus through a series of interview rounds and allows the collection of experts' opinions [11]. Accordingly, and on the basis of an ESO initiative, experts were selected mainly, but not exclusively in the Eurozone.

Methods

PRISMA data source and search strategies

This investigation has been conducted adhering to the PRISMA Statement for review and meta-analysis (Fig. 1). We conducted a systematic review of the literature by searching PubMed database using the following search strategy: “colonic neoplasms” [MeSH Terms] AND “registries” [MeSH Terms] AND (“surgical procedures, operative” [MeSH Terms] OR “general surgery” [MeSH Terms]) NOT “robotic surgical procedures” [MeSH Terms] AND “europe” [MeSH Terms] AND (“humans” [MeSH Terms] AND English [lang]); “laparoscopy/epidemiology” [MeSH Major Topic] AND “colonic neoplasms” [MeSH Terms] NOT “robotic surgical procedures” [MeSH Terms] AND (“humans” [MeSH Terms] AND English [lang]); “laparoscopy/statistics and numerical data” [MeSH] AND “colonic neoplasms” [MeSH Terms] NOT “robotic surgical procedures” [MeSH Terms] AND (“2007/05/08” [PDAT]: “2017/05/04” [PDAT]) AND (“humans” [MeSH Terms] AND English [lang]); “laparoscopy/trends” [MeSH] AND “colonic neoplasms” [MeSH Terms] NOT “robotic surgical procedures” [MeSH Terms] AND (“humans” [MeSH Terms] AND English [lang]) and “laparoscopy/utilization” [MeSH] AND “colonic neoplasms” [MeSH Terms] NOT “robotic surgical procedures” [MeSH Terms] AND (“humans” [MeSH Terms] AND English [lang]).

If studies missed data from any European countries, a further search for “laparoscopic colectomy rate in ...” was repeated in PubMed including the members European union as listed in https://europa.eu/european-union/about-eu/countries_en.

Significant references from retrieved publications were also included. Duplicate references were removed by manual search. Authors of this study were blinded to authors' and journals' name while reviewing the series, and did not have any contacts with the authors of the included papers. We did not consider any journal's scores (e.g., journal's Impact Factors) of the published series as exclusion criteria for this review.

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