Göteborg, 2024

Incidence of Colorectal Cancer and Comparisons of Outcomes after Minimally Invasive and Open Surgery

Akademisk avhandling

som för avläggande av medicine doktorsexamen vid Sahlgrenska akademin, Göteborgs universitet kommer att offentligen försvaras i Hörsal Arvid Carlsson, Academicum, Medicinaregatan 3, Göteborg, fredagen den 19e januari, kl. 13.00

av

Josefin Petersson

Fakultetsopponent:

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University of Leeds, Leeds Institute of Molecular Medicine
United Kingdom

Avhandlingen baseras på följande delarbeten

I. **Petersson J**, Bock D, Martling A, Smedby KE, Angenete E, Saraste D.
Increasing incidence of colorectal cancer among the younger population in Sweden.
BJS Open. 2020;4(4):645-658

II. **Petersson J**, Matthiessen P, Jadid KD, Bock D, Angenete E.
Short term results in a population based study indicate advantage for laparoscopic colon cancer surgery versus open.
Sci Rep. 2023;16;13(1):4335

III. **Petersson J**, Matthiessen P, Jadid KD, Bock D, Angenete E.
Short-term results in a population based study indicate advantage for minimally invasive rectal cancer surgery versus open.
Submitted manuscript

IV. **Petersson J**, Koedam TW, Bonjer HJ, Andersson J, Angenete E, Bock D, Cuesta MA, Deijen CL, Fürst A, Lacy AM, Rosenberg J, Haglind E; COlorectal cancer Laparoscopic or Open Resection (COLOR) II Study Group.
Bowel Obstruction and Ventral Hernia After Laparoscopic Versus Open Surgery for Rectal Cancer in A Randomized Trial (COLOR II).
Ann Surg. 2019;269(1):53-57

SAHLGRENSKA AKADEMIN
INSTITUTIONEN FÖR KLINISKA VETENSKAPER

GÖTEBORGS UNIVERSITET

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Incidence of Colorectal Cancer and Comparisons of Outcomes after Minimally Invasive and Open Surgery

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ABSTRACT

Aim. Surgery remains the mainstay of treatment for colorectal cancer. The aim of this thesis was to determine the overall incidence of colorectal cancer in Sweden over time and to evaluate surgical treatment comparing minimally invasive surgery including laparoscopic and robot assisted laparoscopic surgery to open surgery.

Methods Paper I explores the overall incidence of colorectal cancer in Sweden over time. Papers II-IV report results from two population based cohort studies and a randomized controlled trial. The papers compare minimally invasive surgery including laparoscopic and robot assisted laparoscopic surgery to open surgery for colon and rectal cancer.

Results Paper I found a decrease in the overall incidence of colorectal cancer in Sweden in the last decade, whilst the incidence in patients under the age of 50 years continued to increase. Paper II demonstrated favorable short-term outcomes following laparoscopic surgery compared to open surgery for colon cancer. Paper III showed that minimally invasive surgery for rectal cancer was non-inferior to open surgery with regard to adequate cancer resection with advantageous short-term outcomes. There were no long-term difference in risk of bowel obstruction, incisional, or parastomal hernia comparing the surgical techniques in patients with rectal cancer as reported in paper IV.

Conclusion The overall incidence of colorectal cancer in Sweden has decreased in the last decade, despite an increase in the younger population. Surgical resection for colorectal cancer using minimally invasive technique is oncologically safe with favorable short-term outcomes compared to open surgery. No advantage was found following minimally invasive surgery for rectal cancer with regard to long-term risk of bowel obstruction, incisional and parastomal hernia.

Keywords: colorectal cancer incidence, colon cancer, rectal cancer, surgery

ISBN 978-91-8069-551-0 (PRINT)
ISBN 978-91-8069-552-7 (PDF)