2021 RANZCOG Virtual Annual Scientific Meeting
15–18 February

Mortality benefit of prophylactic oophorectomy at time of initial surgery for primary colorectal carcinoma in women: A Systematic Review

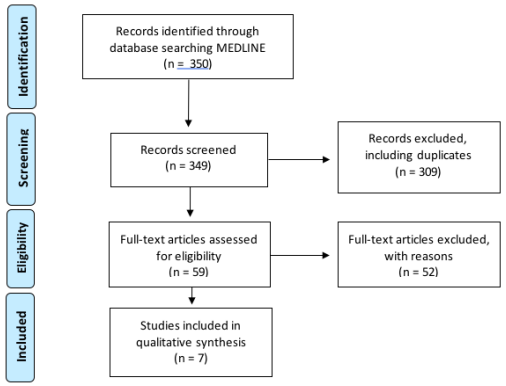
Dr Jo Levis (MBBS)
Intern, Royal Adelaide Hospital

Introduction

Colorectal carcinoma (CRC) is the third most common cancer and the second most common cause of cancer death in Australia.[1] In an estimated 3-8% of women with CRC the ovaries are a site of metastases[2, 3] and metastases to the ovaries are associated with poor outcomes and high mortality.[4] However, oophorectomy has associated risks, notably endocrine deficiencies, with flow on effects to cardiovascular, bone and cognitive health.[4] Prophylactic oophorectomy at time of primary surgery for CRC remains controversial and current guidelines are lacking.

Methodology

Medline via PubMed was used to collect appropriate publications. MeSH terms were used including "colorectal cancer" and "oophorectomy" not "Lynch syndrome". A second database, EMBASE, is in the process of being searched to add to the validity of the data. Records were screened and either included or excluded based on their abstract alone or from the full text, with a return of seven papers for review. The flowchart illustrates this process.



Results

Of the seven studies selected to include in the analysis, one is a Randomized Control Trial (RCT) and the other six are observational studies, four of which are retrospective and two prospective trials. Six of the seven studies failed to demonstrate statistical significance of a survival benefit and the one remaining (Sianesi[4]) did not provide clear statistics about their overall findings of survival benefit, but did identify statistical significance for postmenopausal women who underwent left hemicolectomy or anterior resection of the rectum. The table below summarizes these findings.

Author	Number of Women in Study (N)	Study Type	Outcome	Statistical Significance (Yes/No)
Ballantyne et al.[2]	571	Retrospective	Prophylactic oophorectomy group had 5.1% better survival than group with retained ovaries	No
Cai et al.[3]	267	Retrospective	5 year survival 75% for those undergoing oophorectomy compared to 73% in women with retained ovaries	No (p >0.05)
Cutait et al. [5]	350	Prospective, non randomized	No survival benefit of prophylactic oophorectomy vs retained ovaries, survival affected by stage of disease (p= <0.001)	No
Sianesi et al.[4]	523	Retrospective	No overall survival benefit stated, although statistical significance for ovarian metastasis in postmenopausal women who undergo left hemicolectomy or anterior resection of the rectum (p<0.05)	Not stated
Sielezneff et al. [6]	101	Prospective, non randomized	No difference in 5 year survival between those who underwent oophorectomy and those with retained ovaries	No (p=0.62)
Tentes, et al. [7]	124	Retrospective	No difference in 5 year survival between those who underwent oophorectomy and those with retained ovaries, stage of the cancer independently influences survival (p=0.0061)	No
Young-Fadok et al[8]	149	Prospective, randomized	Oophorectomy patients had increased survival of 2-3 years on statistical curve, but no statistical significance	No

Conclusions

All studies selected from the Medline search failed to demonstrate statistical significance in survival benefit for performing prophylactic oophorectomy at the time of primary surgery for CRC in women. Despite this, it is worth noting that only one study was a RCT (Young-Fadok[8]) and the remaining six were observational with non randomized treatment arms of prophylactic oophorectomy versus ovaries retained. Lack of RCTs gathered did not allow for robust comparisons as could be expected with a meta analysis.

Despite relative lack of evidence for survival benefit of performing prophylactic oophorectomy for all women with CRC, these papers were able to draw conclusions as to when performing oophorectomy may be of benefit. This includes but is not limited to those with family history of primary ovarian malignancy[9], location of the primary CRC[8] and those not receiving adjuvant chemotherapy for their primary CRC[3].

As outlined in the Methodology, a search of a second database should be included to increase the validity of these findings. A search of EMBASE, along with the inclusion of a second author (Dr Georgia Roberts, MBBS) and a risk of bias assessment is underway to complement these initial findings for our publication.

References

1. Bowel cancer (Colorectal cancer) in Australia statistics [Webpage]. Australian Government 2020 [6/9/20]. Available from: https://www.canceraustralia.gov.au/affected-cancer/cancer-types/bowel-cancer/statistics
2. Ballantyne GH, Reigel MM, Wolff BG, Ilstrup DM. Oophorectomy and colon cancer. Impact on survival. Ann Surg. 1985;202(2):209-14
3. Cai GX, Xu Y, Tang DF, Lian P, Peng JJ, Wang MH, et al. Interaction between synchronous bilateral prophylactic oophorectomy and adjuvant chemotherapy in female patients with locally advanced colorectal cancer. Colorectal Dis. 2011;13(4):414-9
4. Sianesi M, Bertocchi E, Rossini M, Del Rio P, Viani L. Ovarian metastases from colorectal cancer: prognostic role of prophylactic oophorectomy. A single center experience. European journal of gynaecological oncology. 2016;37(6):792-5
5. Cutait R, Lesser ML, Enker WE. Prophylactic oophorectomy in surgery for large-bowel cancer. Diseases of the colon and rectum. 1983;26(1):6-11.
6. Sielezneff I, Salle E, Antoine K, Thirion X, Brunet C, Sastre B. Simultaneous bilateral oophorectomy does not improve prognosis of postmenopausal women undergoing colorectal resection for cancer. Diseases of the colon and rectum. 1997;40(11):1299-302
7. Tentes A, Markakidis S, Mirelis C, Leventis C, Mitrousi K, Gosev A, et al. Oophorectomy during surgery for colorectal carcinoma. Techniques in coloproctology. 2004;8 Suppl 1:s214-6
8. Young-Fadok TM, Wolff BG, Nivatvongs S, Metzger PP, Ilstrup DM. Prophylactic oophorectomy in colorectal carcinoma: preliminary results of a randomized, prospective trial. Dis Colon Rectum. 1998;41(3):277-83; discussion 83-5
9. Schofield A, Pitt J, Biring G, Dawson PM. Oophorectomy in primary colorectal cancer. Ann R Coll Surg Engl. 2001;83(2):81-4