



Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:

Waters, PS;Cheung, FP;Peacock, O;Warrier, SK;Heriot, AG;O'Riordain, DS;Pillinger, S;Lynch, AC;Stevenson, ARL

Title:

Reply to Slim et al.

Date:

2020-04-01

Citation:

Waters, P. S., Cheung, F. P., Peacock, O., Warrier, S. K., Heriot, A. G., O'Riordain, D. S., Pillinger, S., Lynch, A. C. & Stevenson, A. R. L. (2020). Reply to Slim et al.. *Colorectal Disease*, 22 (4), pp.466-467. <https://doi.org/10.1111/codi.14911>.

Persistent Link:

<https://hdl.handle.net/11343/286707>

DR PEADAR SEAN WATERS (Orcid ID : 0000-0003-2947-9206)

MR OLIVER PEACOCK (Orcid ID : 0000-0002-1645-4301)

Article type : Correspondence

CDI-00813-2019

Correspondence

Reply to Slim et al

Peadar S Waters¹, Francis P Cheung¹, Oliver Peacock¹, Satish K Warriar¹, Alexander G Heriot¹,
Diarmuid S O'Riordain⁴, Stephen Pillinger³, Andrew C Lynch¹, Andrew RL Stevenson²

1. Colorectal Surgery Unit, Peter MacCallum Cancer Centre, 305 Grattan Street, Melbourne, Victoria 3000, Australia
2. Colorectal Surgery Unit, Royal Brisbane Hospital, Brisbane, Australia
3. Northern Sydney Colorectal Clinic, 69 Christie St, St Leonards NSW 2065, Australia.
4. Department of Colorectal Surgery, Beacon Hospital, Sandyford, Dublin 18, Ireland

Corresponding Author & Reprints:

Peadar S Waters: Colorectal Surgery Unit, Peter MacCallum Cancer Centre, 305 Grattan Street, Melbourne, Victoria 3000, Australia

Telephone Number: 0115 969 1169, Fax Number: 0115 875 4655

Email: peadarwaters@hotmail.com

Dear Editor,

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/CODI.14911](https://doi.org/10.1111/CODI.14911)

This article is protected by copyright. All rights reserved

We would like to thank Slim et al (ref) for their comments pertaining to the recently published systematic review on surgical outcomes in robotic vs laparoscopic right hemicolectomy for cancer recently published in *Colorectal Disease* (1). The authors state that wherever possible data should be pooled to permit meta-analysis but comment that this was not possible because of heterogeneity of data between individual studies. Despite taking its place at the top of the hierarchy of evidence, it is widely acknowledged that meta-analyses are associated with their own inherent weaknesses. Those containing multiple small or inconclusive studies, which are very common, can be misleading and represent poor predictors of results when compared to adequately powered and well-designed large prospective studies. (2). Nevertheless, in the authors opinion the publication of meta-analyses comprising retrospective and heterogeneous studies may be occasionally helpful in generating hypotheses, recognising that results may be subject to publication bias and error thus requiring their conclusions to be treated with a degree of scepticism (3).

With regards to the conclusions of this systemic review the authors state that no significant difference was observed in the thirty-day morbidity and mortality when comparing both surgical approaches. This was based on analysis of eight and eleven studies from respective groups. With regards to secondary outcome measures (*post-operative ileus, anastomotic complication, surgical wound infection, length of stay, incisional hernia rate, conversion to open, margin status, lymph node harvest*), the authors considered that these were key proponents of successful patient orientated surgical outcomes in minimally invasive right hemicolectomy. Interpretation of results is also complicated by the fact that the term “successful patient orientated surgical outcomes” is relatively recent precluding direct comparison with studies published some years ago. In relation to anastomotic leak as an outcome measure, rates were found to be equivalent in nine studies and significantly improved in two studies in patients undergoing a robotic approach (4, 5).

We note the comments by Slim et al, that within a number of studies there can be a series of confounding factors related to anastomotic leak rates. However, to date we are not aware of any large randomised control trial reporting on the impact of intracorporeal anastomosis formation on such outcomes. Additionally, as regards length of stay we consider that this is not subjective and is a useful surrogate marker of a successful surgical outcome, one that is continuously used by health care facilities to monitor and evaluate performance against benchmark standards (6, 7). The majority of trials investigating the benefits of a new technological advances or changes in operative approach routinely utilise length of stay as a key performance indicator and quality metric in reporting patient outcomes. We also concur with Slim et al, that the use of enhanced recovery programmes is very variable and therefore their influence on outcomes is unclear.

Lastly, we acknowledge it is important to consider recent developments in technology. Regarding the randomised control trial published in 2012 by Park et al, the authors utilised length of stay as a primary outcome measure and reported that the study was limited by the fact that it was a comparative study performed in the setting of a randomised trial (8). In addition, they comment that it

was further limited by the fact that there was a reduced number of patients in the study with surgery being performed by a single surgeon who was more experienced in laparoscopic than robotic approaches. Moreover, they concluded that further developments in robotic technology were required. There is no doubt that this has now occurred. The recent development of the Xi platform has improved versatility, reduced the learning curve and simplified multi-quadrant robotic surgery and is now facilitating widespread application of robotic approaches across all domains of surgery (9). Further, it is probable that development of new robotic platforms by other competing medical device companies will result in decreasing costs of robotic surgery encouraging its wider adoption.

Therefore, we believe that now more than ever a large randomised control trial is required. As eluded to previously, a meta-analysis or systematic review should not provide definitive evidence for an intervention but rather should prompt one to conduct a definitive RCT.

1. Waters PS, Cheung FP, Peacock O, Heriot AG, Warriar SK, O'Riordain DS, Pillinger S, Lynch AC, Stevenson ARL. Successful patient-oriented surgical outcomes in robotic vs laparoscopic right hemicolectomy for cancer - a systematic review. *Colorectal Dis* 2019 Aug 10. doi: 10.1111/codi.14822.
2. Doleman, B., Williams, J.P. & Lund, J. *Tech Coloproctol* (2019). <https://doi.org/10.1007/s10151-019-02020-y>
3. Doleman B, Sutton AJ, Sherwin M, Lund JN, Williams JP (2018) Baseline morphine consumption may explain between- study heterogeneity in meta-analyses of adjuvant analgesics and improve precision and accuracy of effect estimates. *Anesth Analg* 126:648–660.
4. Morpurgo E, Contardo T, Molaro R, Zerbinati A, Orsini C, D'Annibale A. Robotic-assisted intracorporeal anastomosis versus extracorporeal anastomosis in laparoscopic right hemicolectomy for cancer: a case control study. *J Laparoendosc Adv Surg Tech A*. 2013;23(5):414-7.
5. Scotton G, Contardo T, Zerbinati A, Tosato SM, Orsini C, Morpurgo E. From Laparoscopic Right Colectomy with Extracorporeal Anastomosis to Robot-Assisted Intracorporeal Anastomosis to Totally Robotic Right Colectomy for Cancer: The Evolution of Robotic Multi-quadrant Abdominal Surgery. *J Laparoendosc Adv Surg Tech A*. 2018;28(10):1216-22.
6. Mohamed Khalifa and Parwaiz Khalid / *Procedia Computer Science* 63 (2015) 459 – 466
7. Parisi, A., et al., Robotic right hemicolectomy: Analysis of 108 consecutive procedures and multidimensional assessment of the learning curve. *Surg Oncol*, 2017. 26(1): p. 28-36.

8. Park JS, Choi GS, Park SY, Kim HJ, Ryuk JP. Randomized clinical trial of robot-assisted versus standard laparoscopic right colectomy. *Br J Surg* 2012;99:1219-26.
9. Solaini L, Bazzocchi F, Cavaliere D, Avanzolini A, Cucchetti A, Ercolani G. Robotic versus laparoscopic right colectomy: an updated systematic review and meta-analysis. *Surg Endosc* 2018;32:1104-10.

Author Manuscript