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Title

Short term pathology results from the first world wide randomised trial of robotic versus laparoscopic resection for rectal cancer (ROLARR)

Abstract Text

Purpose of the study: The clinical benefit of robotic surgery in rectal cancer, and many other cancers, is unknown. Methods: We undertook the first worldwide randomised trial of robotic versus laparoscopic resection for rectal cancer (ROLARR) between 2011 and 2014. 1276 patients were assessed for eligibility by 40 surgeons from 26 sites across 10 countries. 471 (36.9%) of these patients were randomised; 234 to laparoscopic (LAP) and 237 to robotic (ROB) surgery. 466 patients underwent operation with 456 (97.9%) undergoing the allocated treatment. Summary of results: The primary end point was overall rate of conversion to open surgery, which was LAP 28/230 (12.2%) vs. ROB 19/236 (8.1%) (adjusted OR 0.614, 95%CI 0.311 to 1.211, p=0.158). No differences were seen in bladder or sexual function at 6 months. 76.4% of tumours were stage pT2 or pT3. Mean lymph node yields were high in both arms (23.6 SD 12.43) and 35.9% of cancers were node positive. The overall circumferential resection margin involvement (CRM+) rate was 26/459 (5.7%) with similar odds of between the arms (adjusted OR 0.785, 95% CI 0.350 to 1.762, p=0.557). No distal margin and one laparoscopic proximal margin were involved by tumour. Local pathological assessment of the quality of surgery following anterior resection was of the highest standard in 75.3% of cases, with no difference between the laparoscopic or robotic groups. Central review of the slides and photographs is currently on-going. Conclusions: ROLARR has shown that both laparoscopic and robotic rectal cancer surgery, when performed by experienced surgeons, can achieve excellent short-term outcomes with low CRM+ rates, low conversion rates to open surgery, high lymph node yields, respectable pathological specimens, and low rates of postoperative bladder and sexual dysfunction. It sets a new standard for the quality of pathology examination in bowel cancer trials. Acknowledgements: NW is supported by a Pathsoc Career Development Fellowship.