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## Urogenital functional outcomes in robotic vs laparoscopic rectal cancer surgery: a comparative study

**Sofoklis Panteleimonitis, Jamil Ahmed, Meghana Ramachandra, Mick Harper, Amjad Parvaiz**

Department of Laparoscopic and Robotic Colorectal Surgery, Champalimud Foundation, Lisbon Portugal

Department of colorectal surgery Poole Hospital NHS Foundation Trust, Poole, United Kingdom

Sofoklis Panteleimonitis, email: sofoklis\_p@hotmail.com, tel: 0044 7721773383

**Purpose/ Objectives:** Urological and sexual dysfunction are recognised risks of rectal cancer surgery, however, there is limited evidence regarding urogenital function comparing robotic to laparoscopic approach. The aim of this study was to assess the urological and sexual outcomes of patients undergoing laparoscopic and robotic rectal cancer surgery.

**Material/ Methods:** Urological and sexual functions were assessed using gender specific validated standardised questionnaires. Questionnaires were sent a minimum of 6 months after surgery and patients were asked to report their urogenital function pre and post-operatively, allowing changes in urogenital function to be identified. Questionnaires were sent to 158 patients (89 laparoscopy, 69 robotic) of whom 126 (80%) responded. 78 (49 male, 29 female) of the responders underwent laparoscopic and 48 (35 male, 13 female) robotic surgery. Of those 45 (36 male, 9 female) were sexually active in the laparoscopic group and 17 (13 male, 4 female) in the robotic group.

**Results:** Male patients in the robotic group deteriorated less across all components of sexual function (libido,  $p=0.001$ ; erection,  $p<0.001$ ; stiffness for penetration,  $p<0.001$ ; orgasm/ejaculation,  $p<0.001$ ) and in five components of urological function (frequency,  $p=0.002$ ; nocturia,  $p=0.002$ ; incontinence,  $p<0.001$ ; poo flow,  $p=0.002$ ; incomplete bladder emptying,  $p=0.017$ ). Composite male urological and sexual function scores change from baseline were better in the robotic cohort ( $p<0.001$ ). In females, there was no difference between the two groups in any of the components of urological or sexual function. However, composite female urological function score change from baseline was better in the robotic group ( $p=0.003$ ).

**Conclusion:** Robotic rectal cancer surgery might offer better postoperative urological and sexual outcomes compared to laparoscopic surgery in male patients and better urological outcomes in females. Larger scale, prospective randomised control studies including urodynamic assessment of urogenital function are required to validate these results.