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Editorial

Current status of robotic rectal cancer surgery



Estado atual da cirurgia robótica no câncer do reto

Enthusiasm for the robotic platform, as a minimally invasive approach, has gained most interest in many surgical specialties and today almost two million operations have been performed in the world with the da Vinci Surgical System. The safety and efficacy of robotic surgery have been established for certain operations, most notably radical prostatectomy. All colorectal operations have been performed safely in a robotic fashion; however, the data on clinical and economic benefits derived from controlled trials have not yet totally supported its effectiveness, even in robotic rectal cancer surgery. It is essential that a proper assessment of this new and sophisticated technology be performed before its widespread recommendation.

Recent studies have reported better short-term outcomes and similar oncological result when comparing laparoscopic rectal cancer surgery to open surgery. Nevertheless, laparoscopic rectal surgery could not achieve a high impact, mainly, because of the steep learning curve, high rate of conversion, and the technical challenge of work in a narrow pelvis with limited instruments maneuverability, especially in obese and in patients who were treated by preoperative chemo-radiation.

Robotic rectal resection represents the main indication of the use of the robotic technique in colorectal surgery. The feasibility of robotics for TME rectal cancer resection was established by Pigazzi et al.¹ in 2006. Robotic rectal surgery offers various advantages over traditional laparoscopy because it can provide surgeons with a three-dimension magnification (3DHD) view and the ability to control the operative field by manipulating the camera, as well as enhanced dexterity and precision due to endo-wrist instruments with 7 degrees of freedom. The robotic system improves visualization, exposure, and dissection in confined spaces such as the pelvic cavity. Additionally, in the robotic platform the surgeon is ambidextrous and can operate the console comfortably seated with excellent ergonomics. Appropriate training and practice on robotic systems and the use of simulator with training software are helpful in gaining familiarity with the

skills required for successful robotic surgery, as well as to facilitate the requirements for the final credentialing approved by the proctor.

Not only lower rates of conversion of robotic surgery when compared with laparoscopic ones in rectal resections were reported² but also a markedly shorter learning curve and a smaller number of patients for the surgeon to become proficient at robotic colorectal surgery, even for surgeon with less expert in laparoscopy.^{3,4} This can be an important benefit as the conversion is directly related to a higher rate of post-operative complications and mortality as have showed the CLASICC trial.⁵ The robotic surgery improves the quality of mesorectal excision and provides greater number of surgical specimens with a degree of complete excision and negative circumferential resection margin,⁶ which is related to lower local recurrence. The preservation of the pelvic plexus nerves is also superior and, consequently, urinary and sexual function are better.^{7,8} Additionally, in ultralow anterior resection, the incidence of anastomotic fistula is lower in the robotic group.⁹ Little medical literature exists directly addressing the costs of robotic rectal cancer surgery; certainly, robotic surgery is more expensive, but future advances in robotic technology and competition in the marketplace will help to reduce the cost in the next years.

Currently, standardized robotic rectal surgery is a promising and new alternative and may provide a powerful additional tool for optimal management of this complex disease. Data suggest that it is feasible and safe and have same advantages over laparoscopic surgery, although it has not clearly established a huge benefit over standard laparoscopic surgery in terms of technical, functional or oncological outcomes in large randomized trials. It is therefore of utmost importance that a good evaluation be made before the widespread use of robotics in rectal cancer surgery. It is very important to know its impact on oncological outcomes, its effect on functional outcomes and QoL, and its cost-effectiveness in terms of future healthcare decision-making. Those information are

the objectives of the randomized controlled trial (Robotic versus Laparoscopic resection for rectal cancer – ROLARR)¹⁰ that have the anticipated end date in 9/30/2014 after 400 patients' evaluation. There is a great interest of the colorectal and oncologic community to know those results and especially, the level of evidence and the grade of recommendation of this technique. This study, certainly, will provide important decision orientation to justify the future implementation of this option to treat patients with rectal cancer around the world.

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