Robotic assisted radical prostatectomy: a different treatment for prostate cancer?

Prostatectomia radical robô-assistida: um tratamento diferente para câncer de próstata?

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ABSTRACT

Considering the Health Care System in Brazil, a developing country, and public healthcare policies, robotic surgery is a reality to very few citizens. Therefore, robotic assisted radical prostatectomy is far removed from the daily practice of the vast majority of Brazilian urologists. Scientific evidence of the superiority of robotic assisted radical prostatectomy does not presently justify public investments for widespread development of robotic centers. Maybe over time and with reductions in costs, robotic technology will become a more established practice, as observed in other countries, and more feasible for the Brazilian urological community.

Keywords: Prostatic neoplasms/surgery; Prostatectomy/methods; Robotics; Health care costs

RESUMO

Levando em conta o Sistema de Saúde do Brasil, um país em desenvolvimento, e as políticas de saúde pública, a cirurgia robótica é uma realidade disponível a poucos cidadãos. Assim, a prostatectomia radical robô-assistida está longe da prática diária da grande maioria dos urologistas brasileiros. As evidências científicas da superioridade da prostatectomia radical assistida por robôs não justificam, no momento, os investimentos públicos para o desenvolvimento disseminado de centros de robótica. Talvez mais tarde e com redução nos custos, a tecnologia da robótica torne-se uma prática mais estabelecida, como já observado em outros países, e fique, assim, mais viável para a comunidade urológica do Brasil.

Descritores: Neoplasias da próstata/cirurgia; Prostatectomia/métodos; Robótica; Custos de cuidados de saúde

Open radical prostatectomy was the first treatment used for prostate cancer over a hundred years ago, and it is still considered the gold standard for treating organ-confined disease. After the anatomic studies that resulted in the development of the new retropubic surgical technique in the 1980s[1], retropubic radical prostatectomy (RRP) has gained worldwide acceptance due to better postoperative outcomes, and reduced surgical morbidity, including lower incontinence and impotence rates. RRP remains the most common treatment choice for men with localized prostate cancer[2].

As cure rates increased, other aspects of the so-called Trifecta (oncologic cure, urinary continence, and sexual function) have been intensely scrutinized and studied. In the 1990s, laparoscopic radical prostatectomy (LRP) was developed in an effort to provide less pain and better postoperative recovery. However, between 1999 and 2003, it became clear that learning LRP required advanced laparoscopic skills and a learning curve of more than one hundred cases[3].

In 2001, Menon et al. introduced and embraced robotic assisted radical prostatectomy (RARP) largely because of an inability to master the complex skills required for LRP. By 2009, RARP had emerged and had been rapidly adopted by many centers in the United States and Europe. At present, RARP is the most common approach to surgical treatment of localized prostate cancer in the United States. Although a

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learning curve is also required, the robotic system has been shown to dramatically reduce the learning curve. Benefits of the robotic system include 3D-vision with up to 10x magnification, better ergonomics for the surgeon, wristed movements of laparoscopic instruments, and no tremors[3,4].

Long-term results of RARP are still awaited, but some benefits have been noted, including smaller incisions, less postoperative pain, less blood loss, shorter hospital stays, quicker return to daily activities, and similar functional and surrogate oncologic outcomes[2,5].

There are certain requirements for the establishment of a robotics program. First, professionals must undergo thorough training and practice in order to become comfortable with the robotic system. Additionally, initial cases must be carefully selected, avoiding obese men and large prostates (greater than 60 g without median lobes), prior abdominal surgeries, pelvic radiation, and high-risk tumors[6,7].

The economics of the technological innovation of the robotic system is also a concern to payers and providers of healthcare services. Initial investments for a robotic system are US$ 1.8 million, with a maintenance fee of US$ 100.000/year[8]. Additionally, disposable materials and professional training add significant costs. RARP is one of the most costly recent urological innovations despite shorter hospitalizations and reduced transfusion rates. Although some studies have mentioned that costs were significantly higher for LRP when compared to RRP[9], others show that these costs could be equivalent when performed in higher volume centers by trained surgeons. In this context, a shorter learning curve as well as better outcomes would be benefits of the RARP[10]. However, a previous study demonstrated that RARP is not cost-effective when compared to RRP even considering reduced length-of-stay and lower transfusion rates in large volume (> 400 RARP/year) centers[4]. Nevertheless, one advantage seen with RARP is a quicker return to work, and this financial benefit to the economy has not been assessed yet.

Considering the Health Care System in Brazil, which is a developing country, and Public-Health Care policies, robotic surgery is a reality attainable by a small number of citizens. Therefore, RARP is distant from the daily practice of the vast majority of Brazilian urologists. Scientific evidence of the superiority of RARP does not presently justify public investments for widespread development of robotic centers[2,11]. Maybe with time, reductions in costs will allow robotic technology to become a more established practice, as observed in other countries, and more feasible for the Brazilian urological community.

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