

Commentary: Treatment of prostate cancer

Jiaju Lyu*, Muwen Wang

Department of Urology, Shandong Provincial Hospital Affiliated to Shandong First Medical University, Jinan, China

Prostate cancer (PCa) is the most common male malignancy in many parts of the world and the second most common cause of cancer-related death in the United States and Europe.^[1] Over the past decades, the surgical treatment of PCa has been revolutionized greatly. Radical prostatectomy (RP) is the main treatment option for men with localized PCa.^[2] Open radical prostatectomy has been the standard criterion for the treatment of PCa for a long time. However, this procedure is often followed by considerable blood loss and postoperative pain, and a prolonged hospital stay.^[3] Laparoscopic radical prostatectomy (LRP) was first reported in the early 1990s,^[4] which demonstrated advantages in terms of reduced blood loss, relieved postoperative pain and shorter hospital stay, and lower rates of urinary incontinence and erectile dysfunction, compared with open RP.^[5–7] Therefore, LRP has become the standard procedure in many hospitals and institutions. However, there have been enormous innovations in terms of prostatectomy techniques and equipment. There were a lot of studies comparing sexual and urinary function and health-related quality of life based on the type of RP.

Although the above 2 surgical methods have been the major treatment strategies for PCa, technological innovations for radical prostatectomy have recently been improved to ensure oncological control and postoperative functional outcomes satisfactorily. Meanwhile, the use of robotic assisted radical prostatectomy (RARP) has subsequently increased dramatically, which shows the potential benefits in term of minimally invasive surgery to lead to a widespread adoption because of its precision and magnification. Robotic assisted surgery also offers several advantages, including the use of a high-resolution camera with three-dimensional visualization, performing more precise dissection of anatomic structures via robotic arms, better preservation of functional structures potentially, reducing the rate of positive surgical margin, and better perioperative outcomes.^[8–10] Although there is a lack of evidence that RARP has better oncological or functional outcomes compared to LRP or open retropubic radical prostatectomy, it has been rapidly adopted worldwide.

RARP is generally with an excellent disease control rate, such as the latest disease recurrence with metastatic dissemination. Peritoneal metastasis is a rare site of recurrence. In the study of

Hampson A, they investigated the intra-operative and post-operative cytokines in patients undergoing RARP and explored the change of cytokine concentrations at differing pneumoperitoneum pressures and the potential roles in the development of post-operative ileus. They found that a lower pneumoperitoneal pressure is associated with lower cytokine levels and lower risk of ileus. This study confirmed serum cytokine levels as a marker of paralytic ileus following robotic radical prostatectomy at different pneumoperitoneal pressures.

In another study conducted by Teishima J, they investigated the preoperative aging males' symptoms (AMS) of late-onset hypogonadism (LOH) syndrome and the effects on them after RARP. After comparing the AMS scores (AMSs) at every postoperative stages in two groups with different LOH syndrome, they found that AMSs in PCa patients with LOH syndrome can have the same level of improvement as patients without it.

In addition to RARP, cryoablation has been used as a most established surgical ablation technique in prostate and kidney neoplasms for many years. However, since the introduction of high-intensity focused ultrasound and robotic surgery to treat PCa, the popularity of cryoablation in the field of urology has declined. Cryoablation is an ablation technique that uses rapid freezing and thawing sequences to destroy tissue.^[11] It is usually performed under ultrasound guidance and has inherent limitations associated with this technique. The latest developments in MRI have significantly improved the accuracy of detecting and characterizing PCa with clinical significance.^[12] A lot of studies focus on the debate between selecting the whole gland and focal cryoablation. In the study conducted by Taha T, they compared the oncological and functional results of primary whole gland cryoablation of the prostate using a variable ice cryoprobe and a conventional fixed-size ice probe. Results demonstrated that compared with the conventional fixed-size ice probe, the use of variable ice cryoprobe has nothing to do with the difference in the biochemical recurrence of patients with primary cryoablation of the prostate. This study enriches the previous research through a new perspective of ice cryoprobe.

All in all, in the past decade, the treatment of prostate cancer has changed through new therapies, advanced functional imaging, next-generation sequencing, and better use of existing therapies in early disease.^[13] This, in turn, also led to improvements in surgical techniques. Therefore, several efforts have been made in recent years to improve the surgical techniques so as to provide patients with the best quality of life after surgery.

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Statement of ethics

None.

* Corresponding Author: Jiaju Lyu, Department of Urology, Shandong Provincial Hospital, 324 Jingwuweiqi Road, Jinan 250021, China. E-mail address: kyoto2310@sina.com (J. Lyu).

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Conflict of interest

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