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A PROSPECTIVE RANDOMIZED STUDY TO COMPARE FUNCTIONAL OUTCOMES OF RADIOFREQUENCY AND ULTRACISION SCALPELS IN EXTRAPERITONEAL LAPAROSCOPIC RADICAL PROSTATECTOMY

Hypothesis / aims of study

To compare the recovery of continence and erectile function after laparoscopic extraperitoneal radical prostatectomy using two different surgical devices, namely, Ultracision and Ligasure, for dissection and hemostasis.

Study design, materials and methods

One hundred thirty two males with localized prostate cancer were prospectively enrolled for the study and subjected to laparoscopic extraperitoneal radical prostatectomy.

They were randomly divided into two groups: Group A comprising of 66 patients and Group B comprising of 66 patients. Surgery of Group A patients was conducted using radiofrequency scalpels, whereas, the surgery of Group B patients was conducted using ultrasonic scalpels.

The recovery of urinary continence and erectile function of the patients were assessed by self-administered questionnaires (International Continence Society Questionnaire and International Index of Erectile Dysfunction) at 15 days before surgery, and 90 and 180 days after prostatectomy.

Results

Differences in operative time, intra- and perioperative complications, and postoperative hospital stay for the two groups were statistically insignificant.

Patients treated with radiofrequency (LigaSure) showed better recovery of continence and erectile functions compared to patients treated with ultrasonic scalpel (Harmonic) at 180 days after surgery, as shown by a statistically significant difference between ICIQ-UI ($p = 0.0016$) and IIEF 5 ($p = 0.0342$) scores.

Interpretation of results

The VLERP is a safe and standardized surgical technique with satisfactory oncologic and functional results. In literature, there are no studies comparing the impact of different surgical devices used for dissection and hemostasis in VLERP. Most of the surgeons choose a device based on practical aspects, especially their confidence with the instrument and simplicity of use. However, what matters is that, the preference of one device with respect to others may depend on technical aspects and objective data; in VLERP, it is represented by the functional outcomes. In the present study, both the surgical devices used showed to be effective and safe. Comparison of perioperative data using these two instruments demonstrated similarity in operative time, blood loss, catheterization time, and post-operative hospital stay. However, at six months follow-up a better functional outcome was indicated for patients undergoing surgery using LigaSure, which was documented by a statistically improved ICIQ-UI and IIEF-5 scores in the LigaSure group compared to Ultracision group. These preliminary data confirmed the high safety of this device and encouraged to assume that the characteristics of LigaSure allowed to maintain a very controlled target during hemostasis and dissection. This helped to avoid the involvement of undesired structures that could be damaged with a consequential functional damage. Further and larger prospective randomized studies should be expected in future regarding other devices to elucidate the debate over the superiority of one technique over the other and to induce the surgeons to choose a particular instrument based on objective demonstration of its superiority.

Concluding message

In this study, radiofrequency provided better functional outcomes compared to ultrasonic scalpels in patients subjected to extraperitoneal LRP.

This may be attributed to the low lateral spreading of the device, which allowed to limit the damage of tissues not directly involved in the dissection and hemostasis.

	Group A (n = 66)	Group B (n = 66)	p value
IIEF 5 (90 days)	11.93 ± 2.40	10.64 ± 1.91	p=0.68
ICIQ-UI (90 days)	6.61 ± 3.75	8.56 ± 5.27	p=0.14
IIEF 5 (180 days)	19.91 ± 4.74	16.51 ± 3.28	p=0.034*
ICIQ-UI (180 days)	4.58 ± 1.92	7.72 ± 3.49	p<0.0001*

Table: Group A (RF) and group B (US) scores on self-administered questionnaires of continence and erectile function.

Data are shown as mean ± SD.

*Statistically significant difference between groups.

IIEF 5 = International Index of Erectile Function 5; ICIQ-UI = International Consultation on Incontinence Questionnaire–Urinary Incontinence; RF = radiofrequency; US = Ultrasound

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