#24400 Long-term outcomes of sexual and urinary function after robot-assisted radical prostatectomy in Japanese patients

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ABSTRACT

OBJECTIVE
Patients undergoing robotic-assisted radical prostatectomy (RARP) in Japan are relatively elderly and often have impaired sexual function. We longitudinally evaluated whether differences in preoperative sexual function affect urinary function after RARP at 5 years postoperatively.

METHODS
We examined changes in voiding and sexual function in patients who underwent RARP at our hospital. Patient background (age, BMI, PSA, prostate volume), surgical outcomes, IPSS, QOL index, ICIQ-SF for urinary function, and IIEF-EF for sexual function were examined. The urinary function and sexual function were evaluated preoperatively and at 1, 3, 6, 12, 24, 36, 48, and 60 months postoperatively. In order to compare the results by preoperative sexual function, the patients were divided into two groups: those with a Q1 of less than 2 points (Group A) and those with a Q1 of 2 points or more (Group B). To examine the effect of nerve-sparing cases in each group were also examined.

RESULTS
Data were available for 172 patients, 72 in Group A and 100 in Group B. The only significant difference in patient background between the two groups was age (median age: 68 years in Group A and 64 years in Group B, p=0.00008). As for voiding function, there were no significant differences in IPSS, QOL index, and ICIQ-SF between the two groups, although IIEF-EF was significantly better in Group B than in Group A from the third postoperative month, but recovery to preoperative values was not observed. The same trend was observed in the nerve-sparing patients in both groups.

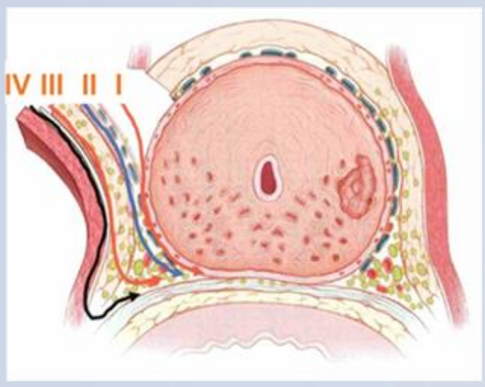
CONCLUSION
The degree of preoperative sexual function had little effect on postoperative urinary continence. Patients with high preoperative sexual function had better improvement in sexual function, but did not improve to preoperative values. The same trend was observed with nerve-sparing.

METHODS

Patients who underwent RARP between October 2010 and December 2017 at our department for prostate cancer (stages cT1–cT3 N0 M0) were included in the present study. All patients consented after being fully informed in accordance with the ethics committee at our institution. All study data were analyzed retrospectively. Age, body mass index (BMI), prostate-specific antigen (PSA), prostate volume (PV), clinical stage, Gleason score (GS), and operative results were recorded. The International Prostate Symptom Score (IPSS), the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF), and QOL index were evaluated before RARP and at 1, 3, 6, 12, 24, 36, 48, 60 months after RARP. Regarding sexual function, the International Index of Erectile Function (IIEF-EF) was used to evaluate before RARP and at 1, 3, 6, 12, 24,36, 48, 60 months after RARP.

Japanese patients are known to be less sexually active than other races [1]. In order to evaluate by sexual function, the IIEF-EF parameters were examined separately for Q1 (How often were you able to get an erection during sexual activity?) less than 2 and Q1 greater than 2. In addition, to see the effect of nerve sparing, cases with Q1 less than 2 and greater than 2 with nerve sparing were also examined.
Data are presented as median value and interquartile range (IQR). Values of $p<0.05$ were considered significant. Statistical analyses were performed using EZR, which is a modified version of R Commander.

Surgical procedures
Surgical procedures were performed by five highly experienced urologists using virtually the same technique.
A multistage NS method was performed for all patients using the four grades of posterolateral prostate resection, as previously described:
Grade 1, intrafascial dissection; Grade 2, interfascial dissection; Grade 3, extrafascial dissection, and Grade 4, wide dissection [2].



RESULTS

In Table 1 patients' characteristics are presented. The total number of eligible patients was 172, with 72 patients with Q1 less than 2 and 100 patients with Q1 greater than 2. The only preoperative factor that showed a significant difference between the two groups was age; no other factors showed significant differences (Q1<2: 68, Q1≥ 2: 64, p = 0.00008). There were no significant differences in perioperative outcomes in terms of nerve preservation rate, operative time, blood loss, or console time. Table 2 shows the trends in sexual function and urinary function. The ICIQ-SF in both groups recovered rapidly by the 12th postoperative month and remained almost unchanged thereafter, but neither group recovered to the preoperative level. IPSS recovered to the preoperative level at 6 months postoperatively and remained almost unchanged thereafter, and QOL index deteriorated in the first month postoperatively but recovered to the preoperative level thereafter. There were no significant differences between the two groups. IIEF-EF showed significant differences preoperatively for Q1 less than 2 and greater than 2, and postoperatively for all periods except the first month. However, the group with a preoperative Q1 of 2 or greater also remained significantly lower postoperatively and did not recover to the preoperative level. To evaluate the impact of nerve sparing, cases with nerve sparing were analyzed in the groups with Q1 less than 2 and Q1 greater than 2. Similarly, no significant differences were found with respect to urinary incontinence and QOL. However, compared to the nerve non-sparing group, the patients had a favorable outcome.There was a significant difference between the two groups for IIEF-EF from preoperative to all postoperative periods, and there was also improvement in IIEF-EF, but recovery to preoperative values was not observed.

Table 1

Patients charastaristics and perioperative outcome

	Q1<2	Q1≥ 2	*p* value
Number of patients	72	100	
Median age, years (IQR)	68.5 (64–72)	64.0 (59–68)	0.00008
Median BMI, kg/m² (IQR)	23.8 (22.2–26.0)	23.6 (21.8–25.4)	0.391
Median PSA, ng/mL (IQR)	7.9 (5.7–10.7)	7.4 (5.7–9.7)	0.619
Median PV, mL (IQR)	30.4 (24.0–39.8)	30.2 (23.3–38.7)	0.692
Clinical stage, n			0.702
≤T2c	68	93	
cT3a	4	7	
cT3b	0	0	
cT4	0	0	
GS of biopsy			0.684
≤ 6	14	25	
7	34	43	
≥ 8	24	32	
Risk class (NCCN)			0.232
low	8	21	
intermediate	31	38	
high	33	41	
Nerve sparing yes/no	32/40	40/60	0.281
Median total operative time, min (IQR)	325.5 (281.0–366.3)	326.5 (282.7–355.5)	0.916
Median console time, min (IQR)	249.5 (207.8–285.0)	238.0 (204.0–281.5)	0.633
Median estimated blood loss, mL (IQR)	150 (80.0–262.5)	150 (58.8–300)	0.96
Intraoperative blood transfusion (%)	0 (0)	0 (0)	
Postoperative blood transfusion (%)	0 (0)	0 (0)	–
Complication: ≥Clavien-Dindo Grade Ⅲ, n, (%)	0 (0)	0 (0)	–

Table 2

Q1<2 vs Q1≥2

	/ month	pre-RARP	1	3	6	12	24	36	48	60
ICIQ-SF Total score	Q1<2 , median (IQR)	0.0 (0.0–0.0)	11.0 (6.5–15.5)	8.0 (4.0–12.0)	4.0 (2.0–7.0)	3.0 (0.0–7.0)	4.0 (0.0–7.0)	3.5 (0.0–7.5)	2.5 (0.0–6.0)	2.0 (0.0–6.0)
	Q1≥ 2, median (IQR)	0.0 (0.0–0.0)	11.0 (5.5–17.0)	6.0 (4.0–10.5)	5.0 (0.0–9.0)	5.0 (0.0–6.0)	3.0 (0.0–6.5)	3.0 (0.0–6.0)	0.0 (0.0–6.0)	0.0 (0.0–4.0)
	P-value	0.918	0.668	0.622	0.93	0.826	0.435	0.526	0.716	0.187
IPSS Total score	Q1<2 , median (IQR)	7.0 (3.0–13.0)	14.0 (9.0–21.0)	8.0 (4.0–11.0)	7.5 (3.5–11.0)	6.0 (3.0–8.5)	5.0 (3.0–8.0)	4.0 (2.0–6.0)	4.0 (1.0–6.0)	4.0 (0.0–6.5)
	Q1≥ 2, median (IQR)	6.0 (3.0–12.0)	10.0 (5.5–18.0)	8.0 (4.0–15.0)	7.0 (4.0–11.0)	7.0 (3.0–12.0)	6.0 (2.5–8.0)	6.0 (1.5–11.0)	4.5 (0.0–9.0)	3.0 (0.0–7.0)
	P-value	0.279	0.155	0.524	0.746	0.391	0.722	0.471	0.547	0.925
QOL Index	Q1<2 , median (IQR)	2.0 (1.0–4.0)	5.0 (5.0–6.0)	3.0 (2.0–5.0)	3.0 (2.0–4.0)	2.0 (1.0–3.0)	2.0 (1.0–3.0)	2.0 (1.0–3.0)	2.0 (1.0–3.0)	2.0 (1.0–3.0)
	Q1≥ 2, median (IQR)	2.0 (1.0–4.0)	4.5 (3.0–6.0)	4.0 (2.0–5.0)	3.0 (2.0–4.0)	2.0 (1.5–4.0)	3.0 (2.0–4.0)	3.0 (1.0–4.0)	3.0 (2.0–4.0)	2.0 (1.0–3.0)
	P-value	0.767	0.086	0.807	0.709	0.359	0.366	0.606	0.239	0.209
IIEF-EF	Q1<2 , median (IQR)	2.0 (1.0–3.0)	1.0 (1.0–1.0)	1.0 (1.0–2.0)	1.5 (1.0–2.5)	2.0 (1.0–3.0)	1.0 (1.0–3.0)	1.0 (1.0–3.0)	1.0 (1.0–3.0)	1.0 (1.0–3.0)
	Q1≥ 2, median (IQR)	19.0 (13.5–26.0)	1.0 (1.0–2.5)	3.0 (1.0–4.0)	3.0 (1.0–6.0)	2.0 (2.0–8.0)	3.0 (1.0–9.0)	3.0 (1.0–9.0)	2.5 (2.0–6.5)	2.5 (1.0–9.0)
	P-value	<0.0001	0.096	<0.0001	0.0149	0.0122	0.0354	0.0539	0.0255	0.0324

Q1<2 vs Q1≥2 :Nerve Sparing

	/ month	pre-RARP	1	3	6	12	24	36	48	60
ICIQ-SF Total score	Q1<2 , median (IQR)	0.0 (0.0–0.0)	9.0 (6.0–13.5)	6.0 (4.0–9.0)	4.0 (1.5–7.0)	3.0 (0.0–6.5)	4.0 (0.0–6.0)	3.0 (0.0–6.0)	2.0 (0.0–6.0)	1.0 (0.0–5.0)
	Q1≥ 2, median (IQR)	0.0 (0.0–0.0)	9.0 (4.0–14.0)	5.0 (3.0–10.0)	4.0 (0.0–7.0)	4.0 (0.0–6.0)	3.0 (0.0–5.0)	0.0 (0.0–4.0)	0.0 (0.0–5.0)	0.0 (0.0–4.0)
	P-value	0.195	0.33	0.247	0.405	0.131	0.218	0.052	0.13	0.103
IPSS Total score	Q1<2 , median (IQR)	4.5 (2.0–9.5)	12.0 (7.0–17.0)	8.0 (5.0–11.5)	7.0 (3.5–12.0)	6.0 (3.0–8.5)	5.0 (3.0–9.0)	5.0 (2.5–7.5)	5.0 (1.0–7.0)	2.0 (0.0–4.0)
	Q1≥ 2, median (IQR)	6.0 (3.0–11.5)	9.0 (5.0–16.0)	6.5 (4.0–12.0)	6.0 (3.0–9.0)	5.5 (2.0–9.0)	4.0 (2.0–8.0)	4.0 (1.0–8.0)	4.0 (0.0–7.0)	2.0 (0.0–3.0)
	P-value	0.586	0.094	0.599	0.476	0.486	0.356	0.481	0.411	0.549
QOL Index	Q1<2 , median (IQR)	4.0 (1.0–5.0)	5.0 (4.0–6.0)	3.0 (2.0–5.0)	3.0 (1.0–4.0)	2.0 (1.0–3.0)	4.0 (3.0–5.0)	2.0 (1.0–3.0)	2.0 (1.0–3.0)	2.0 (1.0–3.0)
	Q1≥ 2, median (IQR)	2.0 (1.0–4.0)	4.0 (3.0–6.0)	3.5 (2.0–5.0)	3.0 (1.0–4.0)	2.0 (1.5–4.0)	3.0 (2.0–6.0)	2.0 (1.0–3.5)	2.0 (1.0–4.0)	2.0 (1.0–3.0)
	P-value	0.025	0.263	0.844	0.989	0.181	0.202	0.605	0.422	0.358
IIEF-EF	Q1<2 , median (IQR)	2.0 (1.0–3.0)	1.0 (1.0–1.0)	1.0 (1.0–2.0)	1.0 (1.0–2.5)	1.0 (1.0–3.0)	1.0 (1.0–3.0)	1.0 (1.0–3.0)	1.0 (1.0–3.0)	1.0 (1.0–3.0)
	Q1≥ 2, median (IQR)	18.0 (12.0–26.0)	2.0 (1.0–3.0)	3.0 (1.0–6.0)	3.0 (1.0–7.0)	3.0 (2.0–8.5)	6.0 (2.0–11.5)	5.0 (2.0–12.0)	4.0 (2.0–13.0)	4.0 (2.0–10.0)
	P-value	<0.0001	0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00108

CONCLUSIONS

The results suggest that preoperative sexual function does not affect urinary incontinence after RARP. One reason for the poor recovery of sexual function in patients with preserved preoperative sexual function may be a decrease in the frequency of sexual intercourse following RARP.
On the other hand, urinary incontinence was preserved better in the patients who underwent nerve sparing [3].
For patients with poor preoperative sexual function, the trial of nerve sparing did not improve sexual function, suggesting that the impact on sexual function was low, but postoperative urinary incontinence could be maintained.
Therefore, aggressive nerve sparing was considered useful in cases where it was possible.

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Affiliations to disclose†:

no conflicts of interest to declare

† All financial ties (over the last year) that you may have with any business organisation with respect to the subjects mentioned during your presentation

Ethics
This study was conducted at the Department of Urology, Tottori University Hospital. The research protocol was approved by the Tottori University Ethics Committee . (approval number 2545)