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LETTER

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Trends in surgical treatment for prostate cancer: Analysis of National Database Open Data in Japan

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Abstract: We conducted a study to clarify the trends in surgical treatments for prostate cancer in Japan between 2014 and 2020 by analyzing the National Database (NDB) Open Data in Japan. Intriguingly, the number of patients over 70 years old who underwent robotic-assisted radical prostatectomy (RARP) nearly doubled from 2015 to 2019, while that in those 69 years old and younger remained almost constant during the same period. The increase in the number of patients over 70 years of age may reflect the fact that RARP can be safely applied to elderly patients. With the new development and spread of surgery-assisting robots, we can foresee a further increase in the number of RARPs performed for elderly patients in the future.

***Keywords*:** NDB Open Data, robotic-assisted radical prostatectomy, COVID-19

Prostate cancer is the most common malignancy in men worldwide. In 2018, more than 92,000 Japanese men were diagnosed with prostate cancer (*1*). Prostatectomy is the standard treatment option for organ-confined prostate cancer (*2*), while in recent years, the number of robotic-assisted radical prostatectomy (RARP) has been increasing in Japan after being insured in 2012.

To analyze the recent trends in surgical treatment for prostate cancer in Japan, we investigated the National Database (NDB) Open Data in Japan, which contains receipts (medical fee statements) issued by medical institutions to insurers (*3*). The start of the year in the NDB Open Data is April 1st. Overall, in recent years, the total number of surgeries for prostate cancer has increased, except in 2020. The number of prostatectomies performed reached 24,134 in 2019 (Figure 1A). The decrease in 2020 may be explained by the influence of the COVID-19 pandemic, which caused people to refrain from undergoing medical checkups. Interestingly, the ratio of patients younger than 70 years to those 70 years and older reversed in 2018, with patients aged 70 years and older starting to predominate (Figure 1B).

Herein, we analyzed the number of prostatectomies per 100,000 males from official statistics from Japan (*4*). Of note, the number of prostatectomies increased in those over 70 years of age, while it decreased constantly in populations under 69 years of age (Figure 1C). In Japan, open or laparoscopic prostatectomy accounts for a considerable proportion of cases. To examine the trend in each operative technique, we classified surgeries as either RARP or others (open radical prostatectomy, laparoscopic radical prostatectomy, and minimum incision endoscopic prostatectomy). Intriguingly, the number of patients over 70 years old in RARP group nearly doubled from 2015 to 2019, while that in those 69 years old and younger remained almost constant during the same period. However, we could not clarify the reason for this discrepancy. The increase in the number of patients over 70 years of age may reflect the fact that RARP can be safely applied to elderly patients (*2*).

We further found that 5,501 (22.8%) and 4,338 (22.1%) prostatectomies were performed without the robotic systems in 2019 and 2020, respectively. More than 500 robotic systems have been introduced in Japanese hospitals, and the prevalence of RARP is almost equivalent to that in the United States and England (*5*).

In conclusion, we observed an increasing trend in the number of RARP in elderly patients in Japan since the introduction of robotic surgery. With the new development and spread of surgery-assisting robots, we can foresee a further increase in the number of RARPs performed for elderly patients in the future. In contrast, we did not observe any increase in the number of RARPs performed in patients younger than 69 years.

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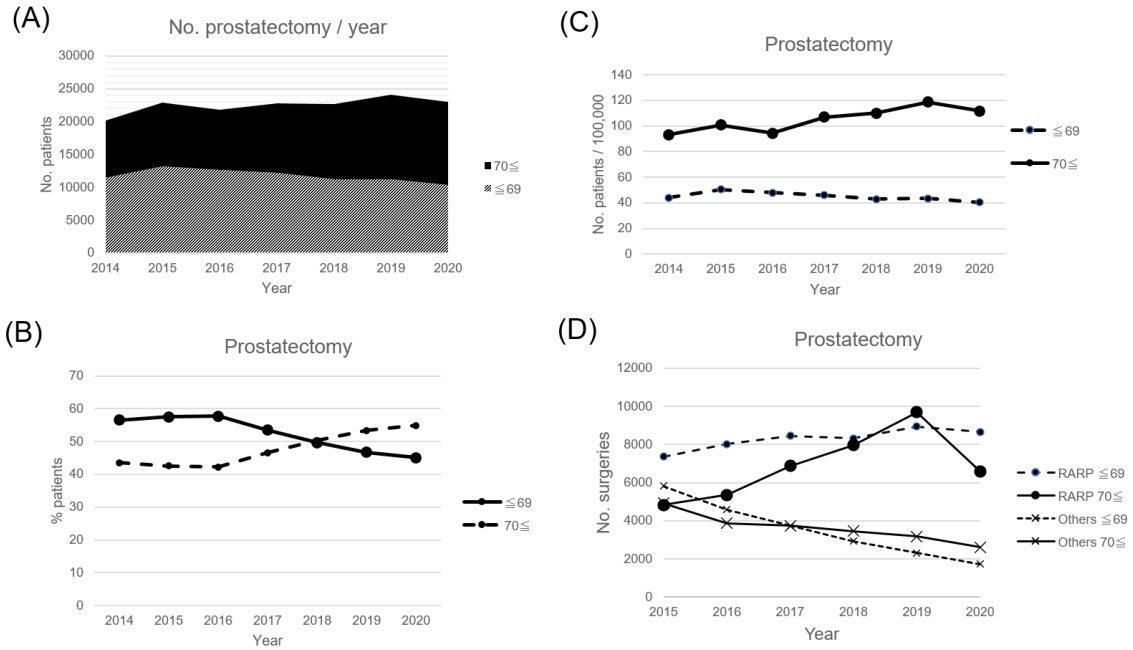

Figure 1. (A) Number of prostatectomies performed per year; (B) Proportion of prostatectomies by age; (C) Number of prostatectomies per 100,000 population; (D) Number of prostatectomies by surgical technique.

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References

1. National Cancer Center. "Prostate cancer". *https://ganjoho.jp/reg_stat/statistics/stat/cancer/20_prostate.html* (accessed October 3, 2022). (In Japanese)
2. Yamada Y, Teshima T, Fujimura T, Sato Y, Nakamura M, Niimi A, Kimura N, Kakutani S, Kawai T, Yamada D, Suzuki M, Kume H. Comparison of perioperative outcomes in elderly (age ≥ 75 years) *vs*. younger men undergoing robot-assisted radical prostatectomy. PLoS One. 2020; 15:e0234113.
3. Ministry of Health, Labour and Welfare. "NDB Open Data". *https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000177182.html* (accessed October 1, 2022). (In Japanese)
4. e-Stat. "Statistics of Japan". *https://www.e-stat.go.jp* (accessed October 1, 2022). (In Japanese)
5. Maynou L, Mehtsun WT, Serra-Sastre V, Papanicolas I. Patterns of adoption of robotic radical prostatectomy in the United States and England. Health Serv Res. 2021; 56(Suppl 3):1441-1461.

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