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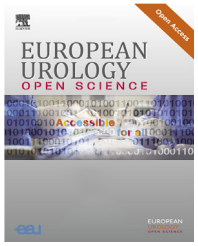
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European Association of Urology

Brief Correspondence

Same-day-discharge Robot-assisted Radical Prostatectomy: An Annual Countrywide Analysis

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Abstract

There are no countrywide data regarding the utilization of same-day-discharge (SDD) surgery for robot-assisted radical prostatectomy (RARP). We aimed to evaluate the annual number of SDD RARP procedures in France and to compare postoperative outcomes in SDD versus non-SDD centers. Data for all 9651 patients undergoing RARP in France in 2020 were extracted from the central database of the national healthcare system. Endpoints were length of hospital stay, patient age, center volume, lymph node dissection, and the hospital readmission rate. Overall, 184 SDD cases (1.9%) were reported in 14.2% of RARP centers. The annual RARP and SDD RARP caseload ranged from 41 to 485, and from one to 47, respectively, in SDD centers. SDD was significantly associated with higher-volume centers ($p < 0.001$). No difference in readmission rate (7.9% vs 5.1%; $p = 0.141$) was observed for SDD versus non-SDD centers. Direct stay costs were estimated at €1457 in SDD centers compared to €2021 in non-SDD centers. The main limitation is the lack of detailed patient characteristics and readmission causes. This annual nationwide analysis suggests that SDD RARP remains infrequently used in routine practice in France despite being associated with comparable short-term outcomes after RARP and potential cost benefits.

Patient summary: We evaluated the use of robot-assisted removal of the prostate (RARP) with same-day hospital discharge in France for men with prostate cancer. In 2020, only 1.9% of the 9651 RARP procedures involved same-day discharge, even though the data show that this approach has lower costs and comparable safety.

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Robot-assisted radical prostatectomy (RARP) is the preferred surgical approach for prostate cancer surgery in Western countries for the treatment of localized prostate cancer [1]. It has been suggested that minimally invasive techniques including robotic assistance provide benefits in terms of blood loss, pain, hospital length of stay (LOS),

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Table 1 – Comparison of preoperative data and postoperative outcomes between SDD and non-SDD centers

	All centers	Non-SDD centers	SDD centers	*p* value
Number of annual RARPs	9651	9467	184	
Median RARPs per center, *n* (IQR)	59 (35–90)	50 (34–82)	96 (67–122)	<0.01
Median patient age, yr (IQR)	65.2 (64.2–66.0)	65.1 (64.3–66.0)	65.4 (64.1–66.0)	0.7
Lymph node dissection (%)	56.2	55.5	60.6	0.5
Median length of stay, d (IQR)	3.9 (3.1–4.9)	4.1 (3.2–5.1)	3.1 (2.0–3.5)	<0.01
30-d readmission rate (%)	7.4	7.9	5.1	0.14
90-d readmission rate (%)	8.1	8.5	5.8	0.16

RARP = robot-assisted radical prostatectomy; SDD = same-day discharge; IQR = interquartile range.

and global postoperative recovery [2]. This has led to wider acceptance of same-day-discharge (SDD) surgery [3,4]. However, to date, only a few large series, mainly from single centers, have been reported, and there are no countrywide data regarding the safety and utilization of SDD RARP in routine practice [5].

Our study population consisted of all RARPs performed in France in 2020. Data were obtained from the nationwide French Programme de Médicalisation des Systèmes d'Informations registry [6]. This system comprehensively records, for claims purposes, the following information for every surgical procedure performed in a private or public hospital: patient age, date of surgery, location of the health care center, principal diagnosis, and LOS. Data from centers performing fewer than ten annual procedures were excluded from the analysis (representing 111 RARPs) given that very low-volume centers do not guarantee sufficient expertise, as previously reported [6]. Endpoints were LOS, hospital readmission rates (at 30 and 90 d), hospital surgical volume, lymph node dissection (LND) rate, and hospital stay costs. A total of 19 018 RPs were performed in 2020 in France, consisting of 21.1% (n = 4009) open RPs, 27.6% (n = 5248) laparoscopic RPs, and 51.3% (n = 9761) RARPs. Analyses were stratified according to SDD on a center basis. The statistical significance was set at $p < 0.05$.

A total of 9651 RARPs (after exclusion of centers with a caseload of less than ten) were performed in 2020 in 134 centers. Overall, 184 SDD cases were reported (1.9%). SDD was performed at least once a year in 14.2% of centers (n = 19). The number of annual SDD cases per center ranged from one to 47, which represented between 0.2% and 54% of the annual caseload. Only five centers performed more than 20 SDD RARPs in 2020; the remaining centers performed fewer than ten SDD RARPs. Eleven SDD centers were for-profit hospitals, seven were academic public centers, and one was a nonacademic public hospital. The annual RARP caseload ranged from 41 to 485 in SDD centers.

Table 1 compares outcomes between SDD and non-SDD centers. SDD was significantly associated with higher-volume centers ($p < 0.001$) and shorter LOS ($p = 0.003$). There was no significant difference in readmission rates between the non-SDD and SDD centers at 30 d (7.9% vs 5.1%; $p = 0.141$) or at 90 d (8.5% vs 5.8%; $p = 0.163$). There was no difference between the groups in terms of patient age ($p = 0.760$) and LND ($p = 0.448$). No significant linear correlation was found between the SDD rate per center and the readmission rate at 30 d ($r = 0.439$; $p = 0.060$) or 90 d ($r = 0.435$; $p = 0.063$), the LND rate ($r = 0.066$; $p = 0.787$), LOS ($r = -0.184$; $p = 0.450$), or patient age ($r = -0.047$; $p = 0.847$). Direct stay costs was estimated at €1457 in SDD centers and €2021 in non-SDD centers. We considered here the average patient stay and the national daily cost of a stay in a surgery ward in France according to the National Cost Study [7].

The advent of minimally invasive RARP has led to a dramatic reduction in LOS over time [6]. In parallel, surgical system costs have increased, which has placed economic pressure from private insurance companies and public health care systems to shorten hospitalization with the global goal of cost reduction. Early discharge directly reduces hospitalization costs and could also generate indirect benefits at a wider level by accelerating return to work and to normal physical activity. These considerations have encouraged urologists and systems to promote SDD RARP. However, to date, few series have assessed the safety of SDD RARP, and to the best of our knowledge there are no countrywide data [3,4]. The only multi-institutional study has recently provided interesting data confirming the safety of SDD in different centers involving different surgeons, different local criteria, and different perioperative pathways such as enhanced recovery after surgery (ERAS) and prehabilitation programs [4]. However, only selected centers offering SDD as routine were involved. Abaza et al [3] reported outcomes for 500 patients undergoing RARP plus LND without any increase in complications, readmissions, or unplanned visits due to SDD. Khalil et al [8] analyzed data from the National Surgical Quality Improvement Program and observed similar overall morbidity between SDD patients and overnight stay patients. Nevertheless, no nationwide data comparing readmission and LOS between SDD and non-SDD centers are currently available in the literature.

In the present study, no correlation was noted between the SDD rate per center and the risk of readmission. These findings may be partly explained by the association between SDD and high-volume centers, reinforcing the role of RARP caseload in improving outcomes [9]. Another point is that the acceptance of SDD may be gradual as surgeons become more and more comfortable with a higher caseload and RARP experience. As LOS remains one of the main cost drivers, SDD could also lead to significant cost reductions [10]. The study by Abaza et al [3] in a US health care system suggested a non-negligible reduction in charges per patient. The same benefit (10% reduction) was also observed in the French health care system [11].

Our study did not assess the impact of patient selection and acceptance of SDD RARP. Patient willingness to undergo SDD may represent a potential barrier. Dobbs et al [12] suggested that only one-third of patients felt ready to be

discharged on the day of their surgery. Insufficient patient education was one of the main barriers limiting adherence to SDD. Thus, recent series have demonstrated that implementation of ERAS and prehabilitation pathways might help to improve RARP outcomes and promote SDD adoption by patients [11].

To conclude, this annual nationwide analysis suggests that SDD RARP remains infrequently used in routine practice in France despite being associated with comparable short-term outcomes after standard RARP. No clear benefit favoring SDD can be demonstrated from our results. However, fewer readmissions, shorter LOS, and lower costs were observed in SDD centers, suggesting that SDD could be safely offered on a wider basis.

Author contributions: Guillaume Ploussard had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Ploussard, Grabia, Lequeu.
Acquisition of data: Grabia, Lequeu.
Analysis and interpretation of data: Ploussard, Beauval, Mathieu, Brureau, Rouprêt.
Drafting of the manuscript: Ploussard, Rouprêt, Lequeu.
Critical revision of the manuscript for important intellectual content: Barret, Brureau, Créhange, Dariane, Fiard, Fromont, Gauthé, Mathieu, Renard-Penna, Roubaud, Ruffion, Sargos, Rouprêt, Lequeu.
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