

Impact of surgical wait times during summer months on the oncological outcomes following robotic-assisted radical prostatectomy: 10 years' experience from a large Canadian academic center



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INTRODUCTION

- Evidence shows that wait times before cancer surgery have been increasing, and that it can negatively affect outcomes.
- Compared to the other seasons of the year, most Canadian hospitals face significant reductions (30-50%) in operative room access during summer months.
- This reduction leads to increased pre-operative wait times and subsequent surgical delays.

OBJECTIVES

- To characterize surgical wait times in patients undergoing robotic-assisted radical prostatectomy (RARP) in a large academic center.
- To evaluate the impact of extra-wait times during summer months on the post-operative oncological outcomes.

METHODS

- A retrospective review of a prospectively maintained RARP database in two high-volume academic centers, between 2010 and 2019.
- Wait time was defined as the interval between date of surgical booking and date of RARP.
- Assessed outcomes included impact on the difference between post-biopsy UCSF-CAPRA and post-surgical CAPRA-S scores, biochemical recurrence (BCR) rates and Gleason score upgrade on surgical specimen.

Characteristics of the study population

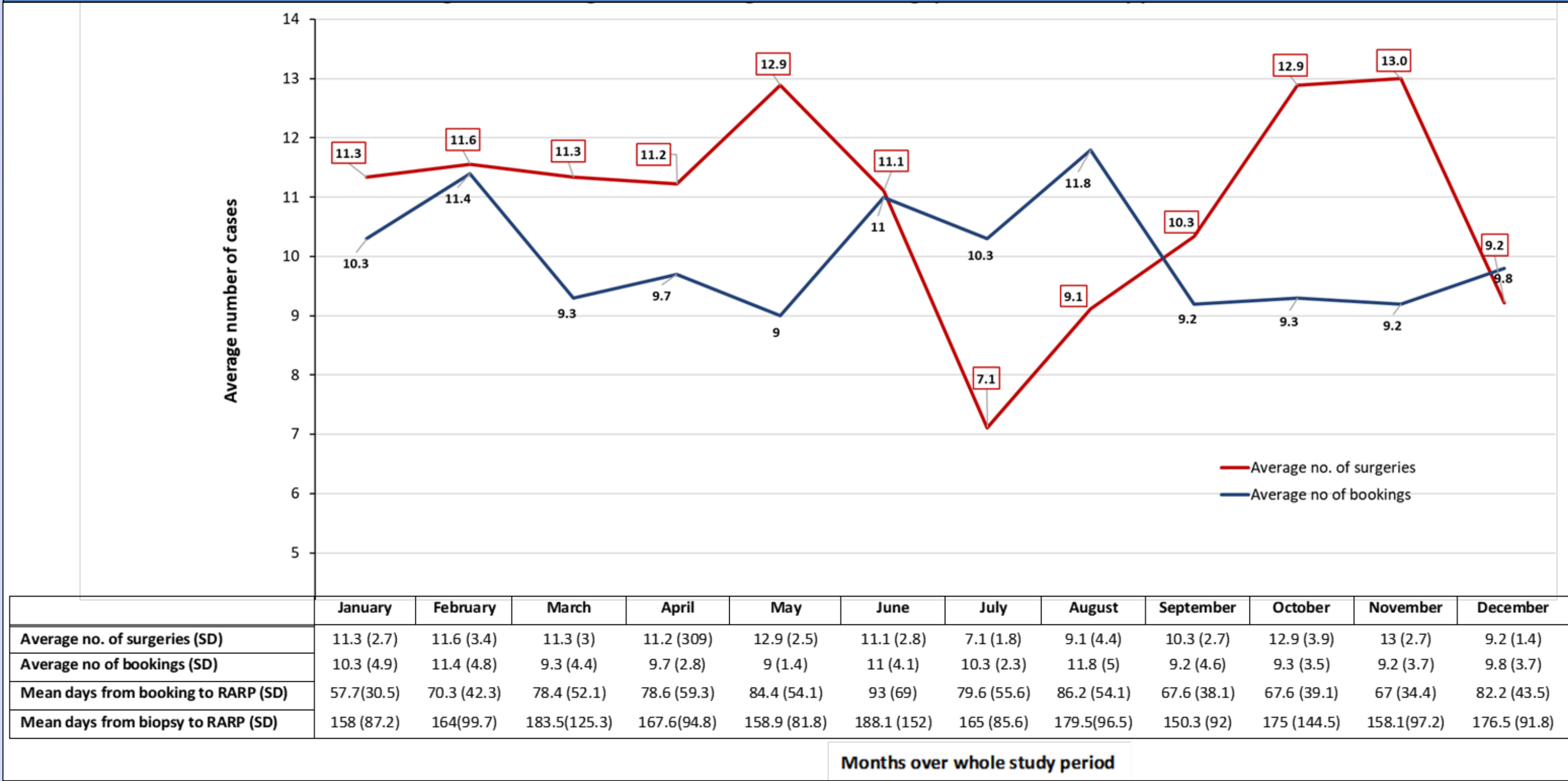
<b>Cohort:</b>	
- Number of patients:	1057
<b>Age:</b>	
- years: mean, SD	60.9 ± 6.5
<b>Pre-operative criteria:</b>	
- <b>PSA:</b> (ng/ml) mean, SD	6.8 ± 3.6
- <b>Clinical Stage:</b> no, %	
cT1c:	812 (76.8%)
cT2a:	173 (16.4%)
cT2b:	52 (4.9%)
cT2c:	11 (1.0%)
cT3a:	6 (0.6%)
cT3b:	3 (0.3%)
- <b>Gleason Score:</b> no, %	
G6:	265 (25.1%)
G7(3+4):	515 (48.7%)
G7(4+3):	170 (16.1%)
G8:	84 (7.9%)
G9:	23 (2.2%)
- <b>USCF-CAPRA Risk:</b> no, %	
Low:	381 (36.0%)
Intermediate:	567 (53.6%)
High:	109 (10.3%)
- <b>Active Surveillance:</b> no, %	196 (18.5%)
<b>Post-operative criteria:</b>	
- <b>Pathological Stage:</b> no, %	
pT2a:	69 (6.6%)
pT2b:	44 (4.2%)
pT2c:	531 (50.5%)
pT3a:	339 (32.2%)
pT3b:	69 (6.6%)
- <b>Gleason Score:</b> no, %	
G6:	142 (13.5%)
G7(3+4):	632 (59.9%)
G7(4+3):	171 (16.3%)
G8:	61 (5.8%)
G9:	49 (4.6%)
- <b>Gleason score upgrading:</b> no, %	293 (27.8%)
- <b>Pathological specimen findings:</b> no, %	
+Ve Extracapsular extension:	401 (37.9%)
+Ve Seminal vesicle invasion:	68 (6.4%)
+Ve Surgical margins:	227 (21.5%)
+Ve Lymph node invasion:	21 (2.0%)
- <b>CAPRA-S Risk:</b> no, %	
Low:	540 (51.1%)
Intermediate:	407 (38.5%)
High:	110 (10.4%)
- <b>Biochemical recurrence:</b> no, %	122 (11.7%)
<b>CAPRA score difference:</b> no, %	
- Downstaging:	593 (56.1%)
- Neutral:	214 (20.2%)
- Upstaging:	250 (23.7%)

RESULTS

Time characteristics for biopsy, request and surgery

Month of request	Total number of requests (%)	Total number of surgeries (%)	Average time Req-Sx, days (SD)	Average time Bx-Sx, days (SD)
Overall	1057	1057	76.3 ± 49.8	168.9 ± 105.5
January	93 (8.8%)	91 (8.6%)	57.7 ± 30.5	158.0 ± 87.2
February	98 (9.3%)	94 (8.9%)	70.3 ± 42.3	164.6 ± 99.7
March	84 (7.9%)	93 (8.8%)	78.4 ± 52.1	183.5 ± 125.3
April	88 (8.3%)	92 (8.7%)	78.6 ± 59.3	167.6 ± 94.8
May	80 (7.6%)	102 (9.6%)	84.4 ± 54.1	158.9 ± 81.8
June	88 (8.3%)	86 (8.1%)	93.0 ± 69.0	188.1 ± 152.1
July	93 (8.8%)	59 (5.6%)	79.6 ± 55.6	165.0 ± 85.6
August	107 (10.1%)	73 (6.9%)	86.2 ± 54.1	179.5 ± 96.5
September	82 (7.8%)	79 (7.5%)	67.6 ± 38.1	150.3 ± 91.9
October	72 (6.8%)	107 (10.1%)	67.6 ± 39.1	175.1 ± 144.5
November	83 (7.9%)	110 (10.4%)	67.0 ± 34.4	158.1 ± 97.2
December	89 (8.4%)	71 (6.7%)	82.8 ± 43.5	176.5 ± 91.8
p-value			<0.001	0.387

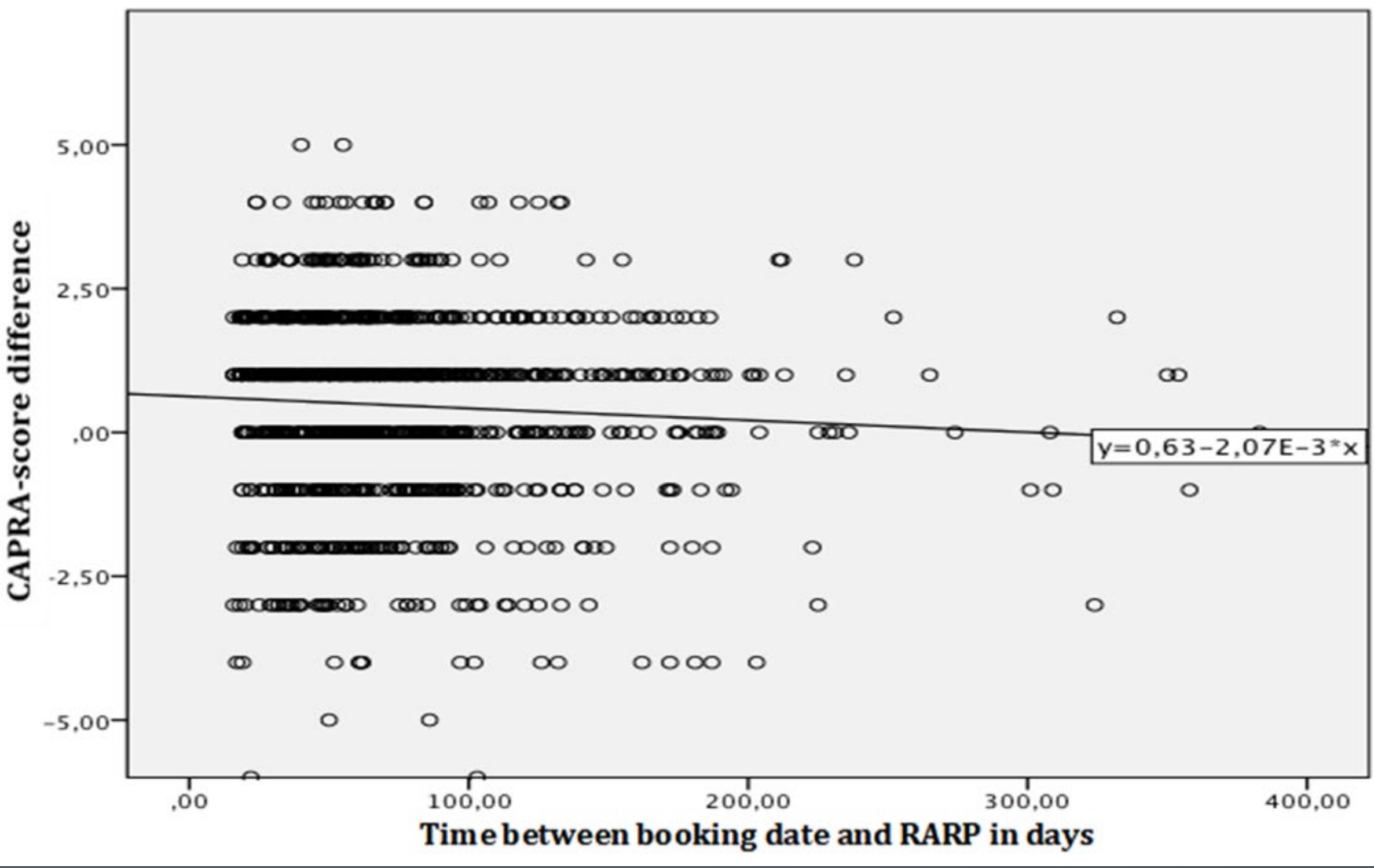
Average numbers of surgeries and bookings per months (Over whole study period)



On Multivariable analysis, compared to patients booked in other months, patients booked in June:

- Had more chance of having an increase in post-operative CAPRA-S score [HR (95%CI) 1.64 (1.02-2.63)]
- Had more chance of having an increase in post-operative CAPRA risk-group [HR (95%CI) 1.82 (1.04-3.19)]

Scatterplot and Pearson correlation for the relation between CAPRA score difference and time between surgical booking date and RARP date (r=-0.062; p=0.044)



CONCLUSION

- Our cohort results demonstrate that conventional RARP wait times are significantly and consistently prolonged during summer months over the past 10 years, with worse post-RARP oncological outcomes in terms of CAPRA score,
- Further multi-specialty and large-scale national studies are required to address these delays in other oncological populations.
- Furthermore, other compensatory mechanisms to sustain consistent yearly operative output should be considered.