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PD55-07 Venous Thromboembolism after Robot-Assisted Radical Cystectomy

Mohammad Durrani*, Sadat Ozair, Ahmed Elsayed, Jennifer Osei, Zhe Jing, Adeena Samoni, Yousuf Ramahi, Sean Gibson, Camille Bennett, Samantha Maley, Ahmed Hussein, Khurshid Guru

Roswell Park Comprehensive Cancer Center, Buffalo, NY

Introduction

- AHRQ—VTE is the number one preventable hospital mortality
- Radical Cystectomy—Susceptible compared to other Urologic Procedures

Open Radical Cystectomy

- n= 1,359
- PE 2.5% incidence
- Median 20 days after RARC
- 4 (0.3%) deaths

Open Radical Cystectomy

- N= 1737
 - 2% DVT, 2.5% PE
- More than half VTE events occurred after prophylactic regiment
- Predictors
 - Age
 - Female
 - Obese
 - Preoperative platelet count >300,000/mcL

Advantages of Robot-Assisted Surgery reducing VTE

S. No.	Advantages of Robot-assisted surgery reducing VTE risk
1	Early return to activities of daily living (DALY); faster postoperative mobility
2	Lesser postoperative pain with reduced analgesic requirements
3	Lesser intra-operative blood loss and shorter hospital stays
4	Reduced requirements of blood or blood product transfusions
5	Patient selection for robotic surgery with early stage of cancer

Table 2: Suggestive positive factors associated with reduced incidence of thrombosis following robotic surgery.

Robot Assisted Radical Cystectomy

- IRCC RARC complications, (n= 939)
 - 10% of complications are Hematologic or Vascular
 - 3% of complications are Pulmonary
- 0.9% died of PE within 90 days, (n= 113)
- 6 DVTs (3.8%), 2 PEs (1.3%), (n= 156)

Methods

- Retrospective review (2005-2019), n= 594 patients.
- VTE vs. No VTE
- Multivariate logistic regression analysis—Predictors of VTE
- Extended VTE prophylaxis— November 2017

Methods

Exclusion Criteria

- 1) Upper Limb DVT
- 2) History of DVT and PE
- 3) Chronic use of anticoagulants



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Results

- 38 patients (6.4%) developed VTE
 - DVT: n=18 (3%), 3.7 m after RARC
 - PE: n=20 (3.4%), 1.4 m after RARC
- No Deaths

Baseline Characteristics

	No VTE	VTE	P-Value
N of patients (%)	556 (94)	38 (6.4)	
Age at cystectomy, mean \pm SD (yr)	68.3 \pm 10.7	69.9 \pm 8.7	0.41
Sex, Males n (%)	416 (75)	28 (74)	0.85
Body Mass Index, mean \pm SD (kg/m ²)	28.8 \pm 6.1	31.1 \pm 6.8	0.03
Chronic Obstructive Pulmonary Disease, n (%)	79 (14)	12 (32)	<0.01
Previous or current smoker, n (%)	430 (81)	32 (91)	0.17
Diabetes, n (%)	125 (22)	7 (18)	0.69
ASA score \geq 3, mean (%)	283 (53)	22 (59)	0.50
Charlson Comorbidity Index \geq 3, n (%)	454 (82)	32 (84)	0.83
Prior abdominal/pelvic surgery, n (%)	318 (57)	21 (55)	0.86
\geq cT3, n (%)	50 (9)	4 (11)	0.77
CN+, (%)	50 (10)	6 (18)	0.25
Prior radiation therapy, n (%)	28 (5)	5 (13)	0.05
Neoadjuvant Chemotherapy, n (%)	145 (26)	12 (32)	0.45



Operative Outcomes

	No VTE	VTE	P-Value
Estimated Blood Loss in ml, median (IQR)	250 (100,450)	300 (200,450)	0.06
Intracorporeal urinary diversion, n (%)	409 (75)	32 (84)	0.24
Ileal conduit urinary diversion, n (%)	494 (89)	36 (95)	0.69
Operative time, median (IQR) (min)	358 (299,429)	361 (296,456)	0.65
Blood Transfusion, n (%)	24 (4)	4 (11)	0.10



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Postoperative Outcomes

	No VTE	VTE	P-Value
Hospital stay, mean (SD) (days)	7 (6,10)	8 (6,13)	0.09
Intensive Care Unit stay, median (IQR) (days)	1 (1,2)	1 (1,2)	0.98
Any High Grade Complication, n (%)	214 (38)	23 (61)	0.01
High Grade Complication 0-30d, n (%)	93 (17)	7 (18)	0.82
High Grade Complication 0-90d, n (%)	129 (23)	10 (26)	0.69
Any readmissions	204 (37)	26 (68)	< 0.01
30-d readmissions	98 (18)	16 (42)	< 0.01
0-90 d readmissions	139 (25)	18 (47)	< 0.01
Death 0-90d, n (%)	23 (4)	0 (0)	0.39
Return to the OR within 30 days of cystectomy, n (%)	28 (5)	4 (10)	0.14
≥ pT3, n (%)	208 (38)	22 (58)	0.02
pN+, n (%)	121 (22)	13 (34)	0.11
Positive Surgical Margins, n (%)	46 (8)	3 (8)	1

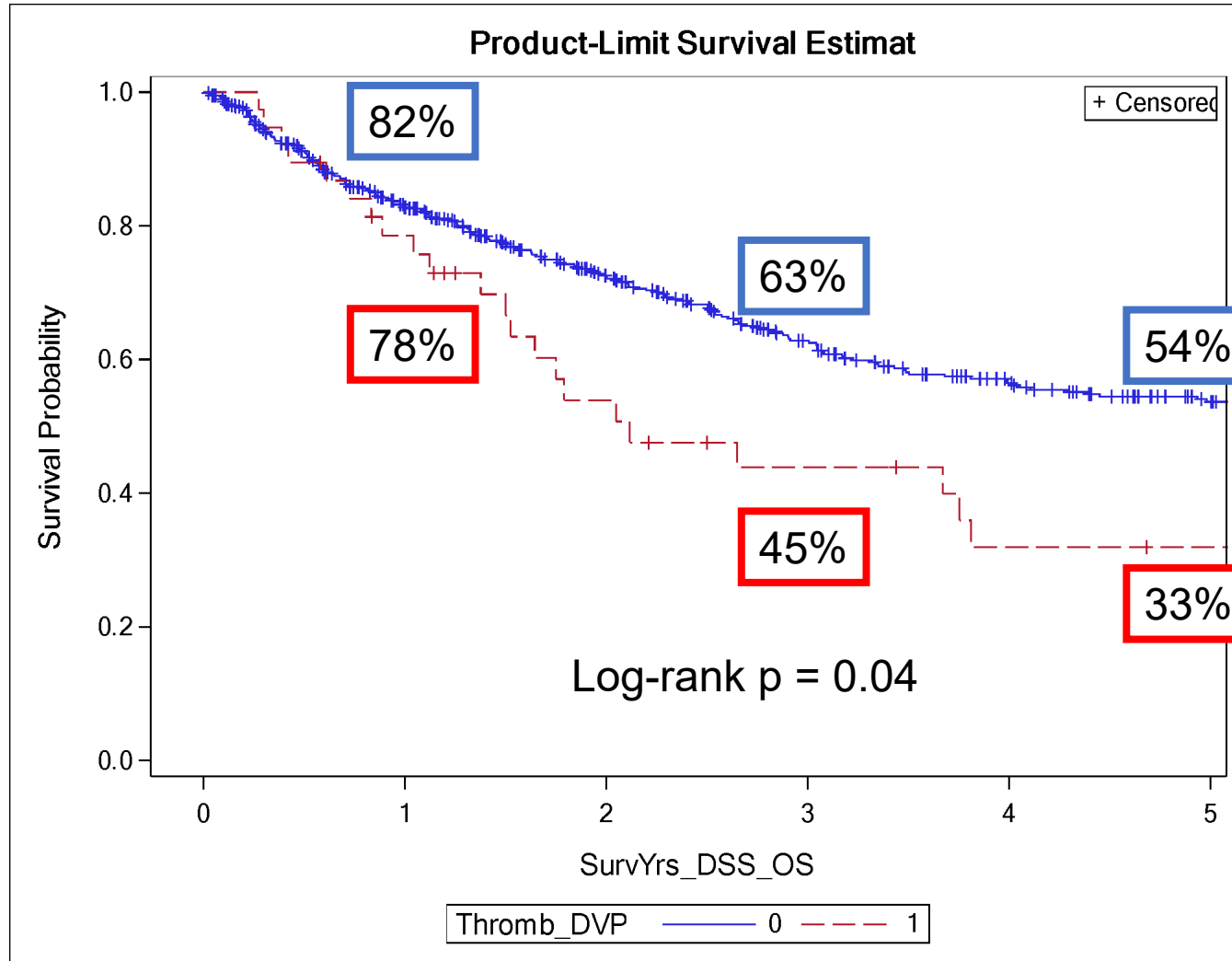


Multivariate Logistic Analysis for VTE

Variable	Odds ratio	95% CI	P-value
African American vs Caucasion	5.25	1.74 - 15.89	<0.01
BMI	1.06	1.01 - 1.1	0.01
Prior Radiation	3.08	1.07 - 8.84	0.04
≥pT3	2.42	1.21 - 4.87	0.01
COPD	2.83	1.33 - 6.01	<0.01

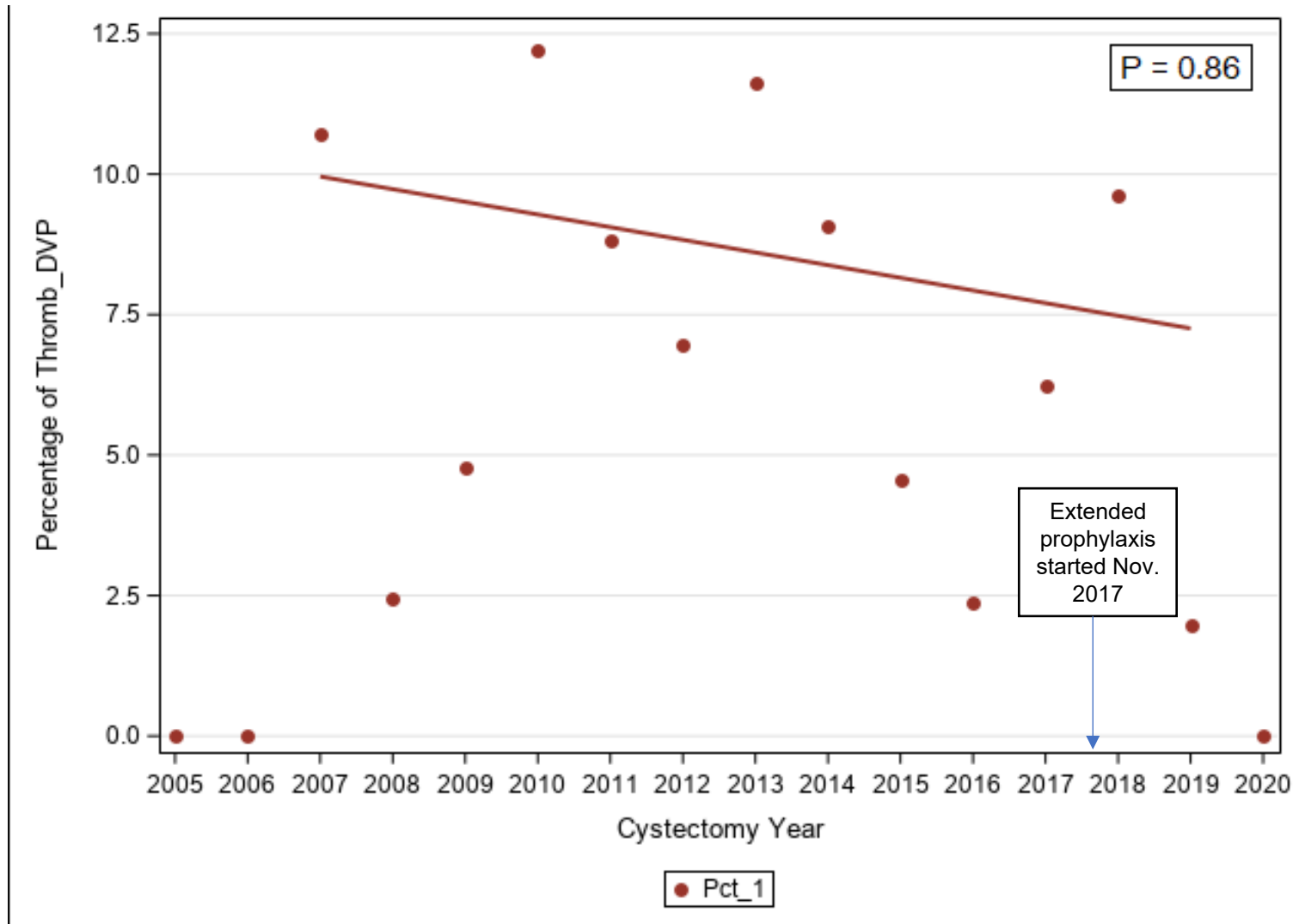
On univariate analysis, cystectomy era and extended VTE prophylaxis were not significantly associated with VTE

5 Year Overall Survival



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VTE trend from 2005-2019



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Conclusion

- VTE remains a major complication after RARC.
- BMI, prior radiation, \geq pT3, and COPD were higher in VTE group.
- Extended prophylaxis was not significantly associated with VTE.