

PE08 Erectile function recovery following robot assisted radical prostatectomy; nomograms from a large single surgeon series

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Introduction & Objectives: Age, comorbidities, preoperative erectile function (EF), and the amount of nerves spared have consistently been associated with potency outcomes following RALP. However, no plausible methods of accurately predicting the outcome pre or post operatively have come to fruition. In this study we propose a preoperative and post-operative nomogram to predict post-operative potency recovery following robot assisted laparoscopic prostatectomy (RALP).

Materials & Methods: 9208 men with 1yr follow up from 2008 to 2018. Predictive covariables for pre and post-operative nomogram were selected using the survival random forests plot. Cox- regression model was used identify covariates significantly affecting potency. C- index was used to measure the goodness of fit for survival outcomes in the Cox regression model (Table 1) and a pre- and post-operative nomogram for potency at 3,6 and 12 months was developed (Fig. 1). ROC curves were used to analyze the performance of the predictive models.

Results:

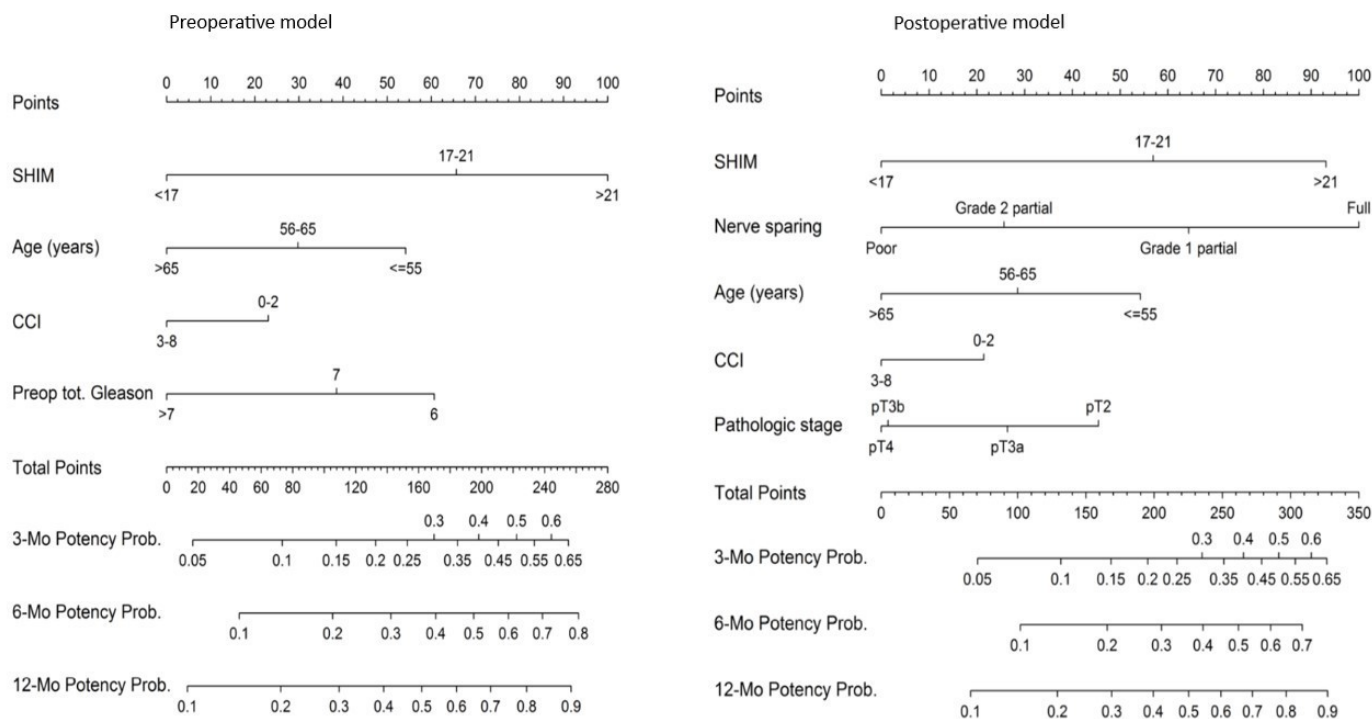
54.2% were potent irrespective of pre-op SHIM, age and NS performed. 73.4% of patients with no pre-op ED (SHIM \geq 22) and 55.5% of patient with mild ED (SHIM $>$ 17 - $<$ 21) achieved potency. The mean days to potency was 183.36 days. The AUC for ROC in pre-op model at 3,6 and 12 months were .747, .751 and .765 respectively. The AUC for ROC in post-op model at 3,6 and 12 months were .764, .769 and .785 respectively. Patients of age $<$ 55 yrs with full NS and no pre-op ED, had a potency rate of 92%. Age, pre-op EF & NS determines

the potency outcomes justifying better AUC for post-operative model vs. the pre-op model.

Table No 1: - Cox- regression model analysis factors predicting potency.

Co-variables	Pre- Op Model				Post op Model			
	Hazard ratio	P value	Confidence Interval		Hazard ratio	P value	Confidence Interval	
			Lower	Upper			Lower	Upper
Pre-operative SHIM								
No Erectile Dysfunction (SHIM ≥ 22)		0.000				0.000		
Mild Erectile Dysfunction (SHIM 17-21)	2.29	0.000	2.09	2.51	1.95	0.000	1.78	2.15
Moderate to Severe Erectile Dysfunction (SHIM ≤ 16)	3.54	0.000	3.26	3.85	2.99	0.000	2.75	3.26
Age								
Age ≤ 55		0.000				0.000		
Age 56-65	0.73	0.000	.68	.78	.74	0.000	.69	.79
Age > 65	0.50	0.000	.46	.55	.53	0.000	.48	.58
Modified Charlson comorbidity index								
0-2		0.000				0.000		
3-8	.74	0.000	.68	.81	.78	0.000	.71	.85
Total Pre op Gleason score								
6		0.000						
7	.755	0.000	.71	.80				
>7	.463	0.000	.41	.51				
Nerve sparing								
Grade 4 Nerve-sparing						0.000		
Grade 3 Nerve sparing					1.36	0.004	1.10	1.68
Grade 2 Nerve sparing					2.15	0.000	1.77	2.60
Grade 1 Nerve-sparing					3.26	0.000	2.70	3.96
Pathological T stage								
Organ confined (≤ pT2c)						0.000		
Extra prostatic extension (pT3a)					.80	0.000	.74	.86
Seminal vesicle invasion (pT3b)					.59	0.000	.52	.69
Adjacent organ involved (pT4)					.58	0.002	.42	.82

Fig No 1:- Pre and post-operative model of prediction of potency recovery following surgery.



Conclusions: The above nomograms help us to predict with good accuracy the probability of potency recovery at 3, 6 and 12 months following surgery with pre-op and post-op factors. This is a novel tool to predict realistic expectation of potency, while pre-op and immediate post-op counselling.