Perioperative blood transfusion (PBT) does not predict survival after radical cystectomy

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INTRODUCTION

Perioperative blood transfusions (PBT) in patients undergoing radical cystectomy for bladder cancer have been shown to be associated with inferior survival.

Thus, existing literature recommends reducing transfusion for these patients.

PURPOSE

We investigate the effect of PBT on overall and disease-free survival (OS, DFS respectively) in patients who underwent radical cystectomy for bladder cancer.

METHODS

- 479 patients underwent radical cystectomy
- Single institution
- January 2010 – December 2016
- PBT is defined as packed red blood cell transfusion intraoperatively or within 30 days of surgical date
- Major complication is defined as Clavien III or higher within 30 days
- Primary endpoints are OS and DFS
- Patient-specific variables and outcomes were analyzed in relation to administration of PBT. Multivariable analyses were performed using Cox proportional hazards. Kaplan-Meier curves were constructed to evaluate associations between PBT and survival outcomes.

RESULTS

TABLE 1 Patient specific variables and outcomes

	No Blood Transfusions (171)	Blood Transfusion (308)	P-value
Age	66.7 (9.1)	68.4 (11.0)	0.016
BMI	28.6 (6.0)	28.9 (6.2)	0.736
Operative Time (min)	395 (99)	420 (106)	0.017
Blood Loss (cc)	646 (407)	1468 (921)	<0.001
Days of Stay	7.6 (5.0)	9.5 (6.9)	<0.001
Lymph Node Yield	19.9 (10.1)	17.7 (9.3)	0.015
CCI >3 (96)	15.8%	22.4%	0.016
Final Path Stage T3-T4 (221)	37.4%	51.0%	0.025
Open Approach (353)	55.6%	83.8%	<0.001
Positive Margins (85)	14.6%	19.5%	0.182
Major Complications (141)	21.6%	33.8%	0.005
Neo-adjuvant Chemo (181)	32.2%	40.9%	0.059
Variant Histology (45)	5.3%	11.7%	0.021

TABLE 2 OS Multivariable Model

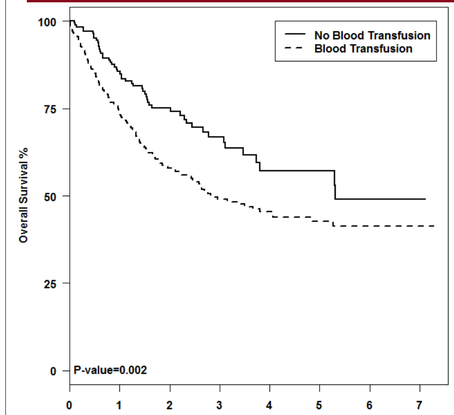
Variable	HR	95% Lower	95% Upper	p-value
Blood Transfusion	1.28	0.92	1.78	0.149
Variant Histology	1.55	0.99	2.41	0.054
Age	1.01	0.99	1.02	0.454
BMI	0.99	0.97	1.02	0.589
Neo-adjuvant Chemo	1.35	1.00	1.83	0.053
T1/Ta/CIS vs. T0	1.51	0.66	3.46	0.330
T2 vs. T0	4.22	2.06	8.66	<0.001
T3 vs. T0	7.75	3.99	15.04	<0.001
T4 vs. T0	11.03	5.55	21.92	<0.001
CCI: 1 vs. 0	1.35	0.90	2.01	0.147
CCI: 2 vs. 0	1.26	0.82	1.92	0.296
CCI: 3 or > vs. 0	1.81	1.24	2.65	0.002

TABLE 3 DFS Multivariable Model

Variable	HR	95% Lower	95% Upper	p-value
Blood Transfusion	1.19	0.80	1.77	0.391
Variant Histology	1.59	0.92	2.74	0.096
Age	1.00	0.98	1.02	0.770
BMI	1.01	0.98	1.04	0.538
Neo-adjuvant Chemo	1.43	0.99	2.08	0.058
T1/Ta/CIS vs. T0	3.66	1.17	11.42	0.026
T2 vs. T0	6.19	2.08	18.43	0.001
T3 vs. T0	17.27	6.22	47.97	<0.001
T4 vs. T0	22.43	7.86	64.00	<0.001
CCI: 1 vs. 0	1.51	0.93	2.44	0.092
CCI: 2 vs. 0	0.97	0.57	1.63	0.894
CCI: 3 or > vs. 0	1.44	0.89	2.32	0.136

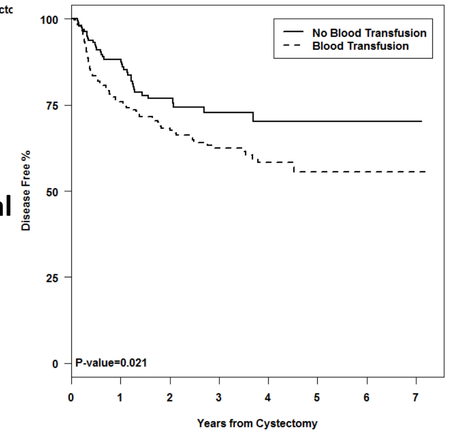
RESULTS

FIGURE 1 Kaplan-Meier curves of OS and DFS for transfused vs. non-transfused patients



Overall Survival

Disease Free Survival



CONCLUSIONS

PBT was associated with decreased OS and DFS but was not an independent predictor of survival. PBT serves as a clinical surrogate for older and frailer patients with more advanced disease.