



Does a History of Malignancy Prior to Heart Transplant Increase Post-Transplant Risk?

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Abstract

Background: Malignancy is a major cause of death late after heart transplantation. It is not clear if patients with pre-transplant malignancies have an increased risk of developing additional cancers post-transplant. Therefore, we assessed pre-transplant and post-transplant malignancies in our single center.

Methods: From 1997 to 2010, we assessed 37 heart transplant patients with pre-transplant malignancies. Endpoints included 5-year survival post-transplant and 5-year freedom from post-transplant malignancy. The type of malignancy pre-transplant was correlated to the type of malignancy post-transplant (i.e. recurrence vs new malignancy). A control group with no pre-transplant malignancies (n=721) was included.

Results: Overall, pre-transplant malignancy patients had a significantly lower 5-year freedom from post-transplant malignancy compared to the control group (81.1% vs 92.4%, p=0.018). There was no difference in 5-year survival between the two groups. Skin, prostate, breast, and colon cancer were seen most commonly pre-transplant. Skin cancer was also the most prevalent cancer post-transplant. Of the 37 patients with pre-transplant malignancies, 7 developed cancer post-transplant. There were three incidences of cancer recurrence (breast, prostate and thyroid cancer).

Conclusion: There appears to be an increased risk for post-transplant malignancy in patients with pre-transplant malignancies. Heightened awareness with cancer screenings are paramount for these patients for early detection of malignancy and to decrease morbidity and mortality.

Background

- Malignancy is a major cause of death late after heart transplantation.
- It is not clear if patients with pre-transplant malignancies have an increased risk of developing additional cancers post-transplant

Purpose

- To assess if a history of pre-transplant malignancies affects the development of post-transplant malignancies after heart transplant in our single center.

Methods

- From 1997 to 2010, we assessed 37 heart transplant patients with pre-transplant malignancies.
- Endpoints included:
 - 5-year survival post-transplant
 - 5-year freedom from post-transplant malignancy
- The type of malignancy pre-transplant was correlated to the type of malignancy post-transplant (i.e. recurrence vs new malignancy).
- A control group with no pre-transplant malignancies (n=721) was included.

Demographics

Demographics	Pre-Transplant Malignancy (n=37)	No Pre-Transplant Malignancy (n=721)	P-Value
Mean Recipient Age, Years ± SD	56.9 ± 12.0	55.6 ± 12.2	0.534
Mean Donor Age, Years ± SD	34.0 ± 13.6	32.2 ± 12.4	0.397
Body Mass Index, Mean ± SD	24.2 ± 4.5	25.0 ± 4.4	0.360
Female (%)	47.2%	23.0%	0.000
Previous Pregnancy in Females (%)	56.3%	76.0%	0.086
Ischemic Time, Mean Mins ± SD	191.8 ± 52.9	195.4 ± 61.8	0.730
Primary Reason for Transplant, Underlying Diagnosis of Coronary Artery Disease (%)	38.9%	50.8%	0.164
Status 1 at Transplant (%)	67.6%	66.7%	0.906
Cytomegalovirus Mismatch (%)	11.4%	26.0%	0.053
Diabetes Mellitus (%)	25.0%	26.6%	0.829
Treated Hypertension (%)	51.4%	40.9%	0.218
Insertion of Mechanical Circulatory Support Device (%)	22.2%	15.2%	0.253
Prior Blood Transfusion (%)	23.5%	24.1%	0.939
Pre-Transplant PRA ≥ 10% (%)	48.3%	18.7%	0.000
Pre-Transplant Creatinine, Mean ± SD	1.3 ± 0.7	1.4 ± 1.2	0.493
ATG Induction Therapy, %	71.4%	54.8%	0.053

Outcomes

Type of Pre-Transplant Malignancy*	N=37	Type of Post-Transplant Malignancy*	N=7
% Skin Cancer (melanoma, squamous cell, basal cell)	18.9% (7/37)	% Skin Cancer (melanoma, squamous cell, basal cell)	28.6% (2/7)
% Prostate Cancer	16.2% (6/37)	% Breast Cancer**	28.6% (2/7)
% Breast Cancer	13.5% (5/37)	% Lung Cancer	14.3% (1/7)
% Colon Cancer	10.8% (4/37)	% Prostate Cancer**	14.3% (1/7)
% Endometrial/Cervical Cancer	8.1% (3/37)	% Oral/Pharyngeal Cancer	14.3% (1/7)
% Leukemia/Lymphoma	8.1% (3/37)	% Thyroid Cancer**	14.3% (1/7)
% Thyroid Cancer	5.4% (2/37)	% Urothelial Cancer	14.3% (1/7)
% Multiple Myeloma	5.4% (2/37)		
% Other**	13.5% (5/37)		

*1 patient with prostate and lung cancer, 1 patient with prostate and pancreatic cancer

*1 patient with lung and bladder cancer, 1 patient with thyroid and breast cancer

**3 incidences of cancer recurrence (1 breast, 1 prostate, 1 thyroid cancer)

Endpoints	Pre-Transplant Malignancy (n=37)	No Pre-Transplant Malignancy (n=721)	Log-Rank P-Value
5-Year Survival	86.5%	81.5%	0.421
5-Year Freedom from Post-Transplant Malignancy	81.1%	92.4%	0.018

Results Summary

- Overall, pre-transplant malignancy patients had a significantly lower 5-year freedom from post-transplant malignancy compared to the control group (81.1% vs 92.4%, p=0.018).
- There was no difference in 5-year survival between the two groups.
- Skin, prostate, breast, and colon cancer were seen most commonly pre-transplant.
- Skin cancer was also the most prevalent cancer post-transplant.
- Of the 37 patients with pre-transplant malignancies, 7 developed cancer post-transplant.
- There were three incidences of cancer recurrence (breast, prostate and thyroid cancer).

Conclusion

- There appears to be an increased risk for post-transplant malignancy in patients with pre-transplant malignancies.
- Heightened awareness with cancer screenings are paramount for these patients for early detection of malignancy and to decrease morbidity and mortality.

Author Disclosures

E. Kransdorf: None. J. Patel: G; C; Alexion, Pfizer, Alnylam. O; C; Therakos. M. Kittleson: None. L. Czer: G; C; St. Jude Medical. D. Chang: G; C; Mesoblast, Amgen. S; C; Abbott Laboratories, AbbVie, Repligen. S. Dimbil: None. R. Levine: None. A. Hsu: None. T. Davis: None. K. Norland: None. A. Trento: None. J. Kobashigawa: G; C; CareDx, Sanofi, CSL Behring.