Outcomes After Lung Transplantation in the Elderly

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Purpose

Previous data have shown reduced survival in older (≥65 years) recipients after lung transplantation (LTx). We aimed to evaluate short- and long-term outcomes and causes of death (COD) in older LTx recipients.

We hypothesized that older patients are more likely to die from infection than rejection because of immune senescence.

Adult LTx recipients in the ISHLT Transplant Registry data were reviewed. The primary outcome was 1- and 5-year patient survival. Secondary outcome was COD within 1 and 5 years post-transplant.

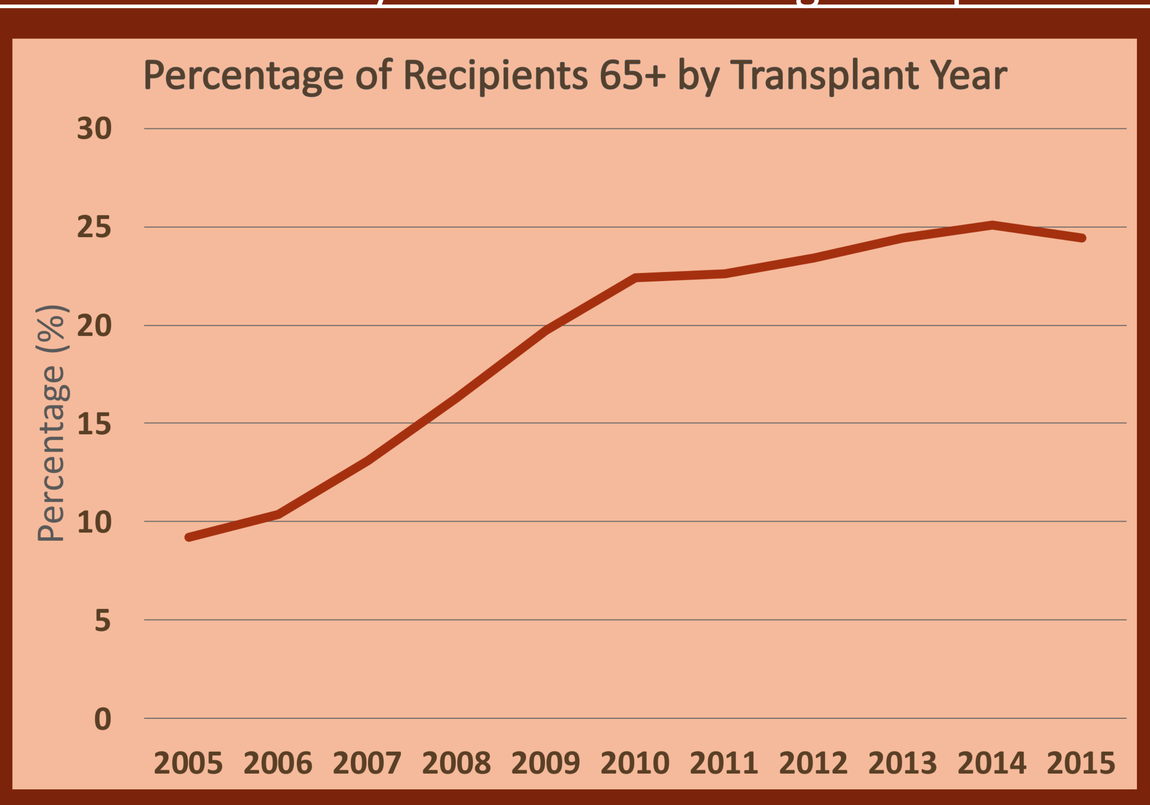

Figure 1. Percentage of LTx recipients 65+ years by Transplant year

Results

18,701 patients (20.1% ≥65 years) transplanted between 2005-6/2015, and **10,175** patients (16.6% ≥65 years) transplanted from 2005-6/2011 were included in the analysis of 1- and 5-year mortality, respectively. The percentage of recipients ≥65 years has increased from 9.2% in 2005 to 24.4% in 2015 [**Figure 1**]. For 2005-6/2015 transplants, patients ≥65 were more likely to have IIP (56.6% vs 29.3%; p<0.001), less likely to have CF (0.1% vs 17.4%; p<0.001) than those <65 years old. In addition, patients ≥65 were more likely to have a history of malignancy (13.2% vs 5.7%; p<0.001), and receive single LTx (56.8% vs 22.5%; p<0.001).

One (84.2% vs 88.95%; p<0.001) and 5-year survival (45.0% vs 61.8%; p<0.001) were significantly lower in the age ≥65 group. Age ≥65 was independently associated with 1- (HR 1.40; 95%CI 1.26-1.54) and 5-year mortality (HR 1.44; CI 1.33-1.56). Other factors associated with mortality at 5 years included single LTx (HR 1.26; 95% CI 1.17-1.35), and recipients needing some (HR 1.12; 95% CI 1.03-1.22) or total assistance (HR 1.35; 95% CI 1.23-1.48).

The COD within 1 and 5 years after LTx were different between the two age groups [Table 1]. There were no differences in CMV, non-CMV infection, and graft failure as a COD within 5 years between the two groups. However, malignancy was a more frequent COD in those ≥65 years (17.3% vs. 8.9%), while BOS/OB was a more frequent COD in those aged <65 (18.4% vs. 14.6%).

Cause of Death (Recipient)	Deaths Within 1 Year After Transplant (N=2,212) (07/01/2005-06/30/2015 transplants)			Deaths Within 5 Years After Transplant (N=4,026) (07/01/2005-06/30/2011 transplants)		
	18 – 64 (N=1,624)	65 + (N=588)	p-value	18 – 64 (N=3,120)	65 + (N=906)	p-value
Missing	149	39	0.0464[1]	293	91	< 0.0001
Acute rejection	37 (2.5%)	8 (1.5%)		46 (1.6%)	4 (0.5%)	
Cardiovascular	111 (7.5%)	59 (10.7%)		162 (5.7%)	61 (7.5%)	
CMV	18 (1.2%)	5 (0.9%)		22 (0.8%)	8 (1.0%)	
Infection, Non-CMV	448 (30.4%)	167 (30.4%)		635 (22.5%)	185 (22.7%)	
Graft Failure	272 (18.4%)	104 (18.9%)		606 (21.4%)	150 (18.4%)	
Malignancy	58 (3.9%)	32 (5.8%)		251 (8.9%)	141 (17.3%)	
Multiple organ failure	191 (12.9%)	49 (8.9%)		216 (7.6%)	35 (4.3%)	
OB/BOS	58 (3.9%)	21 (3.8%)		521 (18.4%)	119 (14.6%)	
Technical	16 (1.1%)	9 (1.6%)		11 (0.4%)	4 (0.5%)	
Other	266 (18.0%)	95 (17.3%)		357 (12.6%)	108 (13.3%)	

Table 1. Causes of death within 1 and 5 years of transplants by age group

Conclusion

Recipient age ≥65 was independently associated with short- and long-term mortality. Causes of death in older patients were different than in younger patients. Malignancy was more common as a COD in the older group within 5 years.