Supplemental Materials

Table S1. Risk factors for lung cancer in the donor lung of lung transplant recipients

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Cases** | **Unadjusted IRR (95% CI)** | **P-value** |
| **Recipient age at transplant, years** |  |  | **<0.001** |
|  0-34 | 3 | 0.3 (0.1-0.9) |  |
|  35-49 | 1 | 0.1 (0.01-0.6) |  |
|  50-64 | 18 | 1 |  |
|  ≥65 | 4 | 2.1 (0.7-6.2) |  |
| **Donor age at transplant, years** |  |  | **0.04** |
|  0-20 | 3 | 0.4 (0.1-1.3) |  |
|  20-39 | 11 | 1 |  |
|  ≥40 | 12 | 1.6 (0.7-3.6) |  |
| **Donor cigarette use**  |  |  | **0.09** |
| Yes | 10 | 2.5 (1.1-5.6) |  |
| No | 14 | 1 |  |
| Missing | 2 | 1.0 (0.2-4.2) |  |
| **Recipient cigarette use**  |  |  | **<0.001** |
| Yes | 20 | 1 |  |
| No  | 4 | 0.3 (0.1-0.8) |  |
| Missing | 2 | 0.1 (0.03-0.5) |  |
| **Transplant procedure type** |  |  | **<0.001** |
| Single Lung | 12 | 1 |  |
| Bilateral Lung | 14 | 0.3 (0.1-0.6) |  |
| **Time since transplant**  |  |  | **0.37** |
| 91 days – 1 year | 7 | 1 |  |
| 1 – 2 years | 3 | 0.4 (0.1-1.5) |  |
| >2 years | 16 | 0.6 (0.3-1.6) |  |

Table S2. All-cause and lung cancer-specific mortality after lung cancer diagnosis in lung recipients compared with other lung cancer patients in the general population stratified by year of lung cancer diagnosis.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Model** | **Total lung cancer cases, n** | **Deaths, n (%)** | **Unadjusted HR (95% CI)** | **Lung cancer cases with treatment information, n**§ | **Deaths, n (%)**§ | **Adjusted HR (95% CI)** §|| |
| **All-cause mortality**\* |
| **All lung cancer** |   |   |   |   |   |   |
| 1992-2002 |   |  |   |  |   |   |
|  Lung recipients | 33 | 33 (100%) | 1.50 (1.07-2.11) | 14 | 14 (100%) | 2.59 (1.53-4.37) |
|  Other patients | 650,182 | 612,948 (94%) | 1.0 (Ref) | 319,610 | 305,784 (96%) | 1.0 (Ref) |
| 2003-2006 |   |  |   |  |   |   |
|  Lung recipients | 44 | 44 (100%) | 1.42 (1.07-1.92) | 34 | 34 (100%) | 1.70 (1.21-2.38) |
|  Other patients | 263,476 | 227,781 (86%) | 1.0 (Ref) | 172,087 | 153,975 (89%) | 1.0 (Ref) |
| 2007-2012 |   |  |   |  |   |   |
|  Lung recipients | 44 | 36 (82%) | 1.40 (1.01-1.94) | 36 | 30 (83%) | 1.94 (1.36-2.78) |
|  Other patients | 254,491 | 186,119 (73%) | 1.0 (Ref) | 195,095 | 151,435 (78%) | 1.0 (Ref) |
|   |   |   |   |   |   |   |
| **NSCLC** |   |   |   |   |   |   |
| 1992-2002 |   |  |   |  |   |   |
|  Lung recipients | 28 | 28 (100%) | 1.49 (1.03-2.16) | 11 | 11 (100%) | 2.53 (1.40-4.56) |
|  Other patients | 544,436 | 513,142 (94%) | 1.0 (Ref) | 268,385 | 256,970 (96%) | 1.0 (Ref) |
| 2003-2006 |   |  |   |  |   |   |
|  Lung recipients | 42 | 42 (100%) | 1.44 (1.06-1.95) | 32 | 32 (100%) | 1.72 (1.22-2.44) |
|  Other patients | 222,694 | 191,417(86%) | 1.0 (Ref) | 145,114 | 129,396 (89%) | 1.0 (Ref) |
| 2007-2012 |   |  |   |  |   |   |
|  Lung recipients | 41 | 33 (80%) | 1.38 (0.98-1.94) | 33 | 27 (82%) | 1.81 (1.24-2.64) |
|  Other patients | 216,708 | 156,004 (72%) | 1.0 (Ref) | 165,941 | 126,874 (76%) | 1.0 (Ref) |
|   |   |   |   |   |   |   |
| **NSCLC curative treatment**† |   |   |   |   |   |   |
| 1992-2002 |   |  |   |  |   |   |
|  Lung recipients | 6 | 6 (100%) | 1.77 (0.80-3.91) | 6 | 6 (100%) | 2.75 (1.24-6.12) |
|  Other patients | 90,718 | 81,355 (90%) | 1.0 (Ref) | 90,718 | 81,355 (90%) | 1.0 (Ref) |
| 2003-2006 |   |  |   |  |   |   |
|  Lung recipients | 11 | 11 (100%) | 1.85 (1.02-3.34) | 11 | 11 (100%) | 3.30 (1.92-5.68) |
|  Other patients | 46,354 | 33,525 (72%) | 1.0 (Ref) | 46,354 | 33,525 (72%) | 1.0 (Ref) |
| 2007-2012 |   |  |   |  |   |   |
|  Lung recipients | 10 | 6 (60%) | 1.95 (0.88-4.35) | 10 | 6 (60%) | 1.34 (0.76-2.36) |
|  Other patients | 53,557 | 26,007 (49%) | 1.0 (Ref) | 53,557 | 26,007 (49%) | 1.0 (Ref) |
|   |   |   |   |   |   |   |
| **Lung cancer-specific mortality**‡ |
|
| **All lung cancer** |   |   |   |   |   |   |
| 1992-2002 |   |  |   |  |   |   |
|  Lung recipients | 27 | 15 (56%) | 1.41 (0.86-2.30) | 14 | 9 (64%) | 2.11 (1.10-4.07) |
|  Other patients | 524,353 | 312,220 (60%) | 1.0 (Ref) | 319,610 | 242,311 (76%) | 1.0 (Ref) |
| 2003-2006 |   |  |   |  |   |   |
|  Lung recipients | 39 | 22 (56%) | 1.26 (0.83-1.91) | 34 | 22 (65%) | 1.34 (1.89-2.04) |
|  Other patients | 214,562 | 123,215 (57%) | 1.0 (Ref) | 172,087 | 123,215 (72%) | 1.0 (Ref) |
| 2007-2012 |   |  |   |  |   |   |
|  Lung recipients | 40 | 23 (58%) | 1.26 (0.84-1.88) | 36 | 23 (64%) | 2.01 (1.33-3.02) |
|  Other patients | 208,210 | 120,157 (58%) | 1.0 (Ref) | 195,095 | 120,157 (62%) | 1.0 (Ref) |
|   |   |   |   |   |   |   |
| **NSCLC** |   |   |   |   |   |   |
| 1992-2002 |   |  |   |  |   |   |
|  Lung recipients | 22 | 12 (55%) | 1.40 (0.80-2.43) | 11 | 7 (64%) | 2.10 (1.00-4.40) |
|  Other patients | 437,424 | 257,684 (59%) | 1.0 (Ref) | 268,385 | 201,315 (75%) | 1.0 (Ref) |
| 2003-2006 |   |  |   |  |   |   |
|  Lung recipients | 37 | 21 (57%) | 1.29 (0.84-1.97) | 32 | 21 (66%) | 1.39 (0.91-2.13) |
|  Other patients | 180,737 | 102,296 (57%) | 1.0 (Ref) | 145,114 | 102,296 (72%) | 1.0 (Ref) |
| 2007-2012 |   |  |   |  |   |   |
|  Lung recipients | 37 | 20 (54%) | 1.17 (0.76-1.82) | 33 | 20 (61%) | 1.82 (1.17-2.82) |
|  Other patients | 176,968 | 99,612 (56%) | 1.0 (Ref) | 165,941 | 99,612 (60%) | 1.0 (Ref) |
|   |   |   |   |   |   |   |
| **NSCLC curative treatment**† |   |  |   |  |   |   |
| 1992-2002 |   |  |   |  |   |   |
|  Lung recipients | 6 | 2 (33%) | 0.78 (0.20-3.03) | 6 | 2 (33%) | 1.29 (0.32-5.16) |
|  Other patients | 90,718 | 55,518 (61%) | 1.0 (Ref) | 90,718 | 55,518 (61%) | 1.0 (Ref) |
| 2003-2006 |   |  |   |  |   |   |
|  Lung recipients | 11 | 6 (55%) | 1.42 (0.64-3.15) | 11 | 6 (55%) | 3.07 (1.54-6.14) |
|  Other patients | 46,354 | 23,006 (50%) | 1.0 (Ref) | 46,354 | 23,006 (50%) | 1.0 (Ref) |
| 2007-2012 |   |  |   |  |   |   |
|  Lung recipients | 10 | 3 (30%) | 1.42 (0.46-4.40) | 10 | 3 (30%) | 1.27 (0.64-2.55) |
|  Other patients | 53,557 | 17,770 (33%) | 1.0 (Ref) | 53,557 | 17,770 (33%) | 1.0 (Ref) |
|   |   |   |   |   |   |   |

\* Analyses of all-cause mortality included all registry areas that provide information on vital status: California, Colorado, Connecticut, Georgia, Hawaii, Iowa, Illinois, Kentucky, New Jersey, New York, Seattle-Puget Sound region, Texas, Utah

† Analysis was restricted to patients with NSCLC with local or regional stage who underwent surgery and/or radiation as treatment. This analysis includes the following 8 registries that provided information on cancer treatment: California, Colorado, Connecticut, Georgia, Iowa, Kentucky (cases diagnosed in 2001 onward), New Jersey, Texas (2003 onward).

§ Analysis was restricted to the following 8 registries that provided information on cancer treatment: California, Colorado, Connecticut, Georgia, Iowa, Kentucky (cancers diagnosed in 2001 onward), New Jersey, Texas (2003 onward).

|| Models were adjusted for age at cancer diagnosis, sex, race, year of cancer diagnosis, cancer stage and treatment.