|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 1.** Baseline demographics for patients who waited 0-7 days, 8-31 days, 32-65 days, and ≥66 days for an Orthotopic Heart Transplant (OHT) after Left Ventricular Assist Device (LVAD) Implantation | | | | |  |
|  |
|  | **0-7 days (n = 41)** | **8-31 days (n = 38)** | **32-65 days (n = 42)** | **≥66 days  (n = 43)** | **No OHT**  **(n = 2036)** |
| Length of stay, mean ± SD | 39.3 ± 33.2 | 48.9 ± 25.6 | 85.8 ± 40.1 | 151.2 ± 52.6 | 37.1 ± 34.6 |
| Length of stay after OHT, mean ± SD | 23.8 ± 21.4 | 21.7 ± 15.8 | 27.6 ± 37.1 | 27.1 ± 22.8 | NA |
| Mortality, n (%) | 11 (26.8) | 5 (13.2) | 5 (11.9) | 5 (11.6) | 564 (27.3) |
| Age, mean ± SD | 50.6 ± 12.6 | 48.6 ± 12.7 | 47.4 ± 15.3 | 46.3 ± 13.1 | 55.4 ± 13.2 |
| Sex, n (%) | | | | |  |
| Male | 33 (80.5) | 32 (84.2) | 35 (83.3) | 34 (79.1) | 1525 (74.9) |
| Female | 8 (19.5) | 6 (15.8) | 7 (16.7) | 9 (20.9) | 511 (25.1) |
| Race, n (%) | | | | |  |
| White | 25 (61.0) | 19 (50.0) | 23 (54.8) | 22 (51.2) | 1185 (58.2) |
| Black | 3 (7.3) | 5 (13.2) | 8 (19.0) | 6 (14.0) | 330 (16.2) |
| Hispanic | 3 (7.3) | 7 (18.4) | 2 (4.8) | 5 (11.6) | 125 (6.1) |
| Asian/Pacific Islander | 2 (4.9) | 0 (0.0) | 1 (2.4) | 4 (9.3) | 44 (2.2) |
| Native American | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 5 (0.2) |
| Other or unknown | 8 (19.5) | 7 (18.4) | 8 (19.0) | 6 (14.0) | 347 (17.0) |
| Median household income, n (%) | | | | |  |
| $1-24,999 | 4 (9.8) | 8 (21.1) | 8 (19.0) | 8 (18.6) | 447 (22.0) |
| $25,000-34,999 | 10 (24.4) | 10 (26.3) | 10 (23.8) | 7 (16.3) | 454 (22.3) |
| $35,000-44,999 | 12 (29.3) | 8 (21.1) | 10 (23.8) | 13 (30.2) | 509 (25.0) |
| $45,000 or more | 12 9 (29.3) | 12 (31.6) | 14 (33.3) | 14 (32.6) | 579 (28.4) |
| Unknown | 3 (7.3) | 0 (0.0) | 0 (0.0) | 1 (2.3) | 47 (2.3) |
| Comorbidities | | | | |  |
| Diabetes | 8 (19.5) | 5 (13.2) | 4 (9.5) | 2 (4.7) | 373 (18.3) |
| Hyperlipidemia | 5 (12.2) | 2 (5.3) | 3 (7.1) | 3 (7.0) | 297 (14.6) |
| Hypertension | 5 (12.2) | 1 (2.6) | 2 (4.8) | 2 (4.7) | 291 (14.3) |
| History of smoking | 5 (12.2) | 2 (5.3) | 0 (0.0) | 0 (0.0) | 137 (6.7) |
| BMI ≥ 30 kg/m2 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 96 (4.7) |
| Number of concomitant diagnoses, | 11.9 ± 3.1 | 12.3 ± 3.0 | 12.5 ± 3.2 | 12.5 ± 3.2 | 12.8 ± 2.9 |
| Location of hospital, n (%) | | | | |  |
| Rural | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 17 (0.8) |
| Urban | 41 (100.0) | 38 (100.0) | 42 (100.0) | 43 (100.0) | 2017 (99.1) |
| Unknown | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (0.1) |
| Size of hospital, n (%) | | | | |  |
| Small | 4 (9.8) | 0 (0.0) | 0 (0.0) | 2 (4.7) | 32 (1.6) |
| Medium | 7 (17.0) | 6 (15.8) | 5 (11.9) | 0 (0.0) | 211 (10.4) |
| Large | 30 (73.2) | 32 (84.2) | 37 (88.1) | 41 (95.3) | 1791 (88.0) |
| Unknown | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (0.1) |
| Teaching status of hospital, n (%) | | | | |  |
| Nonteaching | 1 (2.4) | 1 (2.6) | 2 (4.8) | 1 (2.3) | 160 (7.9) |
| Teaching | 40 (97.6) | 37 (97.4) | 40 (95.2) | 42 (97.7) | 1874 (92.0) |
| Unknown | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (0.1) |

SD, standard deviation; LVAD, Left Ventricular Assist Device, OHT, Orthotopic Heart Transplant

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 2.** Baseline demographics of all LVAD patients, LVAD patients before 2006, and LVAD patients from 2006 onward. | | | | |
|  | **All LVADs (n = 2200)** | **Before 2006 (n = 589)** | **2006 and After (n = 1611)** | **p-valuea** |
| Mortality, n (%) | 590 (26.5) | 253 (43.0) | 329 (20.4) | <0.001 |
| Same Hospitalization OHT, n (%) | 164 (7.5) | 102 (17.3) | 62 (3.8) | <0.001 |
| Length of stay, mean ± SD | 40.5 ± 38.9 | 44.7 ± 48.6 | 39.0 ± 34.6 | 0.008 |
| Age, mean ± SD | 53.4 ± 13.7 | 53.2 ± 13.4 | 55.4 ± 13.4 | < 0.001 |
| Sex, n (%) | | | |  |
| Male | 1659 (75.4) | 433 (73.5) | 1226 (76.1) | 0.23 |
| Female | 541 (24.6) | 156 (26.5) | 385 (23.9) |  |
| Race, n (%) | | | |  |
| White | 1274 (57.9) | 327 (55.5) | 947 (58.8) | < 0.001 |
| Black | 352 (16.0) | 62 (10.5) | 290 (18.0) |  |
| Hispanic | 142 (6.5) | 28 (4.8) | 114 (7.1) |  |
| Asian/Pacific Islander | 51 (2.3) | 13 (2.2) | 38 (2.4) |  |
| Native American | 5 (0.2) | 1 (0.2) | 4 (0.2) |  |
| Other or unknown | 376 (17.1) | 143 (24.3) | 148 (9.2) |  |
| Median household income, n (%) | | | |  |
| $1-24,999 | 475 (21.6) | 88 (14.9) | 387 (24.0) | < 0.001 |
| $25,000-34,999 | 491 (22.3) | 126 (21.4) | 365 (22.7) |  |
| $35,000-44,999 | 552 (25.1) | 141 (23.9) | 411 (25.5) |  |
| $45,000 or more | 631 (28.7) | 214 (36.3) | 417 (25.9) |  |
| Unknown | 51 (2.3) | 20 (3.4) | 31 (2.4) |  |
| Comorbidities | | | |  |
| Diabetes | 391 (17.8) | 91 (15.4) | 300 (18.6) | 0.097 |
| Hyperlipidemia | 310 (14.1) | 61 (10.4) | 249 (15.5) | 0.003 |
| Hypertension | 309 (14.0) | 88 (14.9) | 221 (13.7) | 0.508 |
| History of smoking | 131 (6.0) | 29 (4.9) | 102 (6.3) | 0.257 |
| BMI ≥ 30 kg/m2 | 96 (4.4) | 12 (2.0) | 84 (5.2) | 0.002 |
| Number of comorbid diagnosis, mean ± SD | 12.7 ± 2.9 | 10.6 ± 2.9 | 13.5 ± 2.5 | <0.001 |
| Location of hospital, n (%) | | | |  |
| Rural | 17 (0.8) | 5 (0.8) | 12 (0.7) | 0.73 |
| Urban | 2181 (99.1) | 583 (99.0) | 1598 (99.2) |  |
| Unknown | 2 (0.1) | 1 (0.2) | 1 (0.1) |  |
| Size of hospital, n (%) | | | |  |
| Small | 38 (1.7) | 20 (3.4) | 18 (1.1) | 0.002 |
| Medium | 229 (10.4) | 67 (11.4) | 162 (10.1) |  |
| Large | 1931 (87.8) | 501 (85.1) | 1430 (88.8) |  |
| Unknown | 2 (0.1) | 1 (0.2) | 1 (0.1) |  |
| Teaching status of hospital, n (%) | | | |  |
| Nonteaching | 165 (7.5) | 75 (12.7) | 90 (5.6) | <0.001 |
| Teaching | 2033 (92.4) | 513 (87.1) | 1520 (94.4) |  |
| Unknown | 2 (0.1) | 1 (0.2) | 1 (0.1) |  |

aPairwise t-test or chi-square test for patients before 2006 and patients 2006 and afterwards.

**Table 3.** Complications in hospitalized patients with or without same-admission Orthotopic Heart Transplant (OHT) after Left Ventricular Assist Device (LVAD)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Early OHT (n = 41)** | **Late OHT (n = 123)** | **OHT- (n = 2036)** | **Total (n = 2200)** |
| Acute renal failure | 24 (58.5) | 64 (52.0) | 963 (47.3) | 1051 (47.8) |
| Reoperation | 28 (68.3) | 87 (70.7) | 803 (39.4) | 918 (41.7) |
| Bleeding requiring transfusion | 7 (17.1) | 30 (24.4) | 780 (38.3) | 817 (37.1) |
| Acute respiratory failure | 8 (19.5) | 37 (30.1) | 518 (25.4) | 563 (25.6) |
| Sepsis | 2 (4.9) | 17 (13.8) | 233 (11.4) | 252 (11.5) |
| Postoperative cardiac complication | 7 (17.1) | 15 (12.2) | 234 (11.5) | 256 (11.6) |
| Acute liver failure | 3 (7.3) | 9 (7.3) | 224 (11.0) | 236 (10.7) |
| Device failure | 0 (0.0) | 4 (3.3) | 62 (3.0) | 66 (3.0) |
| Stroke | 1 (2.4) | 1 (0.8) | 53 (2.6) | 55 (2.5) |

\*All pairwise comparisons of early vs. late OHT were not statistically significant (p > 0.05).

**Table 4.** A generalized linear model was created to evaluate post-LVAD OHT mortality. Positive estimates reflect positive association with increased mortality.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Estimate** | | **Standard Error** | | **P-value** |
| Age | 0.003 | 0.002 | | 0.158 | |
| Female Sex | 0.071 | 0.075 | | 0.342 | |
| Caucasian Race | -0.010 | 0.027 | | 0.695 | |
| Median Household Income | 0.013 | 0.027 | | 0.638 | |
| Number of Comorbidities | 0.006 | 0.010 | | 0.518 | |
| Before 2006 | 0.096 | 0.060 | | 0.113 | |
| Early OHT | 0.200 | 0.067 | | 0.004\* | |

\*p < 0.05

**SUPPLEMENTARY TABLES**

|  |  |  |  |
| --- | --- | --- | --- |
| **Supplementary Table 1.** Baseline demographics of all LVAD patients, LVAD patients who underwent OHT, and LVAD patients who did not undergo OHT. | | | |
|
|  | **All LVADs (n = 2200)** | **OHT- (n = 2036)** | **OHT+  (n = 164)** |
|
| Mortality, n (%) | 590 (26.5) | 564 (27.3) | 26 (15.9) |
| Length of stay, mean ± SD | 40.5 ± 38.9 | 37.1 ± 34.6 | 82.8 ± 59.3 |
| Age, mean ± SD | 53.4 ± 13.7 | 55.4 ± 13.2 | 48.2 ± 13.5 |
| Sex, n (%) | | | |
| Male | 1659 (75.4) | 1525 (74.9) | 134 (81.7) |
| Female | 541 (24.6) | 511 (25.1) | 30 (18.3) |
| Race, n (%) | | | |
| White | 1274 (57.9) | 1185 (58.2) | 89 (54.3) |
| Black | 352 (16.0) | 330 (16.2) | 22 (13.4) |
| Hispanic | 142 (6.5) | 125 (6.1) | 17 (10.4) |
| Asian/Pacific Islander | 51 (2.3) | 44 (2.2) | 7 (4.3) |
| Native American | 5 (0.2) | 5 (0.2) | 0 (0.0) |
| Otherǂ or unknown | 376 (17.1) | 347 (17.0) | 29 (17.7) |
| Median household income, n (%) | | | |
| $1-24,999 | 475 (21.6) | 447 (22.0) | 28 (17.1) |
| $25,000-34,999 | 491 (22.3) | 454 (22.3) | 37 (22.6) |
| $35,000-44,999 | 552 (25.1) | 509 (25.0) | 43 (26.2) |
| $45,000 or more | 631 (28.7) | 579 (28.4) | 52 (31.7) |
| Unknown | 51 (2.3) | 47 (2.3) | 4 (2.4) |
| Comorbidities | | | |
| Diabetes | 392 (17.8) | 373 (18.3) | 19 (11.6) |
| Hyperlipidemia | 310 (14.1) | 297 (14.6) | 13 (7.9) |
| Hypertension | 301 (13.7) | 291 (14.3) | 10 (6.1) |
| History of smoking | 144 (6.5) | 137 (6.7) | 7 (4.3) |
| BMI ≥ 30 kg/m2 | 96 (4.4) | 96 (4.7) | 0 (0.0) |
| Number of comorbid diagnosis, mean ± SD | 12.7 ± 2.9 | 12.8 ± 2.9 | 12.3 ± 3.1 |
| Location of hospital, n (%) | | | |
| Rural | 17 (0.8) | 17 (0.8) | 0 (0.0) |
| Urban | 2181 (99.1) | 2017 (99.1) | 164 (100.0) |
| Unknown | 2 (0.1) | 2 (0.1) | 0 (0.0) |
| Size of hospital, n (%) | | | |
| Small | 38 (1.7) | 32 (1.6) | 6 (3.7) |
| Medium | 229 (10.4) | 211 (10.4) | 18 (11.0) |
| Large | 1931 (87.8) | 1791 (88.0) | 140 (85.4) |
| Unknown | 2 (0.1) | 2 (0.1) | 0 (0.0) |
| Teaching status of hospital, n (%) | | | |
| Nonteaching | 165 (7.5) | 160 (7.9) | 5 (3.0) |
| Teaching | 2033 (92.4) | 1874 (92.0) | 159 (97.0) |
| Unknown | 2 (0.1) | 2 (0.1) | 0 (0.0) |

|  |  |
| --- | --- |
| **Supplementary Table 2.** ICD9 codes of diagnosis and procedures | |
|
| **Diagnosis/Procedure** | **ICD9 Code(s)** |
|
| Left ventricular assist device | 3766 |
| Orthotopic heart transplant | 3751, 375 |
| Swan-Ganz catheterization | 8964 |
| Diabetes | 25000-25099 |
| Disorders of lipoid metabolism | 2720-2729 |
| Hypertension | 4010-4019 |
| History of or current use of tobacco | V1582, 3051 |
| BMI ≥ 30kg/m2 | 27800, 27801 |
| Reoperation | 3403, 3764, 3479, 341, 3749 |
| Sepsis | 99591, 99592 |
| Acute respiratory failure | 51881 |
| Postoperative cardiac complication | 9971, 4294 |
| Acute renal failure | 5845-5849 |
| Postoperative bleeding | 4513, 4523, 9904, 9905, 9907, 9909 |
| Stroke | 43491 |
| Acute liver failure | 570 |
| Device failure | 99609 |