**Supplementary Table 3:** Propensity score matched cohort characteristics

|  | **All** | **No opioid use** | **Opioid use** | **Standardized differences** |
| --- | --- | --- | --- | --- |
|  | **(N=428)** | **(N=214)** | **(N=214)** | **Before PSM** | **After PSM** |
| **Variables used in PSM** |  |  |  |  |  |
| *Demographics* |  |  |  |  |  |
| Mean age at transplant (SD), years  | 61 (11) | 61 (12) | 61 (10) | -0.057 | -0.037 |
| Males, n (%) | 418 (98) | 208 (97) | 210 (98) | -0.081 | 0.062 |
| Race, n (%) |  |  |  | 0.161 | 0.11 |
|  Whites | 305 (71) | 151 (71) | 154 (72) |  |  |
|  African Americans | 100 (23) | 53 (25) | 47 (22) |  |  |
|  Other | 23 (5) | 10 (5) | 13 (6) |  |  |
| Median per capita income (IQR), $USD | 27,724 (7,746-40,908) | 27,547 (5,375-56,872) | 28,004 (10,128-38,391) | -0.385 | -0.091 |
| Marital Status, n (%) |  |  |  | 0.306 | 0.071 |
|  Married | 314 (73) | 158 (74) | 156 (73) |  |  |
|  Single | 34 (8) | 18 (8) | 16 (7) |  |  |
|  Divorced | 67 (16) | 32 (15) | 35 (16) |  |  |
|  Widowed | 13 (3) | 6 (3) | 7 (3) |  |  |
| Transplant Center, n (%) |  |  |  | 1.019 | 0.073 |
|  VA | 0 (0) | 0 (0) | 0 (0) |  |  |
|  Not a VA center | 410 (96) | 206 (96) | 204 (95) |  |  |
|  Missing | 18 (4) | 8 (4) | 10 (5) |  |  |
| Service Connected Disability, n (%) | 252 (59) | 126 (59) | 126 (59) | 0.159 | 0 |
| *Donor type,* n (%) |  |  |  | 0.257 | -0.068 |
|  Deceased | 269 (63) | 138 (64) | 131 (61) |  |  |
|  Living | 159 (37) | 76 (36) | 83 (39) |  |  |
| *Comorbidities*, n (%) |  |  |  |  |  |
| Diabetes | 229 (54) | 117 (55) | 112 (52) | 0.528 | -0.047 |
| Chronic Pulmonary Disease | 101 (24) | 49 (23) | 52 (24) | 0.03 | 0.033 |
| Paraplegia and Hemiplegia | 18 (4) | 9 (4) | 9 (4) | 0.07 | 0 |
| Atrial Fibrillation | 57 (13) | 29 (14) | 28 (13) | -0.02 | -0.014 |
| Depression | 89 (21) | 46 (21) | 43 (20) | 0.065 | -0.035 |
| Hypertension | 358 (84) | 181 (85) | 177 (83) | 0.165 | -0.051 |
| Liver Disease | 138 (32) | 70 (33) | 68 (32) | -0.022 | -0.02 |
| Cancer | 81 (19) | 44 (21) | 37 (17) | -0.011 | -0.084 |
| Myocardial Infarction | 50 (12) | 25 (12) | 25 (12) | 0.03 | 0 |
| Congestive Heart Failure | 91 (21) | 46 (21) | 45 (21) | 0.097 | -0.011 |
| Peripheral Vascular Disease | 131 (31) | 68 (32) | 63 (29) | -0.048 | -0.051 |
| Cerebrovascular Disease | 67 (16) | 32 (15) | 35 (16) | 0.092 | 0.039 |
| Dementia | 81 (19) | 41 (19) | 40 (19) | -0.081 | -0.012 |
| Connective Tissue Disease | 50 (12) | 22 (10) | 28 (13) | -0.024 | 0.087 |
| Peptic Ulcer Disease | 30 (7) | 16 (7) | 14 (7) | -0.097 | -0.037 |
| AIDS/HIV | 4 (0.9) | 2 (0.9) | 2 (0.9) | 0.113 | 0 |
| Anemia | 214 (50) | 112 (52) | 102 (48) | 0.1 | -0.094 |
| Hyperlipidemia | 202 (47) | 104 (49) | 98 (46) | 0 | -0.056 |
| Ischemic Heart Disease | 126 (29) | 63 (29) | 63 (29) | 0.033 | 0 |
| *Median CCI*(IQR) | 2 (1-5) | 2 (1-5) | 2 (1-5) | 0.101 | -0.032 |
| *Preemptive transplantation*, n (%) | 119 (28) | 56 (26) | 63 (29) | -0.318 | 0.073 |
| *RRT modality*, n (%) |  |  |  | 0.349 | 0.095 |
|  Hemodialysis | 234 (55) | 121 (57) | 113 (53) |  |  |
|  Peritoneal Dialysis | 61 (14) | 30 (14) | 31 (15) |  |  |
|  Transplant | 119 (28) | 56 (26) | 63 (29) |  |  |
|  Uncertain Dialysis | 14 (3) | 7 (3) | 7 (3) |  |  |
| *Median dialysis duration* (IQR), days | 1,870 (1,206-2,346) | 1,816 (1,203-2,372) | 1,910 (1,213-2,318) | 0.202 | 0.051 |
| *Smoker*, n (%) |  |  |  | 0.603 | 0.101 |
|  Never | 119 (28) | 57 (27) | 62 (29) |  |  |
|  Current | 94 (22) | 45 (21) | 49 (23) |  |  |
|  Past smoker | 99 (23) | 54 (25) | 45 (21) |  |  |
|  Missing | 116 (27) | 58 (27) | 58 (27) |  |  |
| **Variables not used in PSM** |  |  |  |  |  |
| *Vital Signs* |  |  |  |  |  |
| SBP, mmHg | 136 (18) | 135 (20) | 137 (15) | 0.169 | 0.113 |
| DBP, mmHg | 75 (11) | 74 (12) | 75 (10) | 0.111 | 0.116 |
| BMI (SD), kg/m2 | 9 (5) | 28 (5) | 29 (5) | 0.07 | 0.199 |
| *Medication use*, n (%) |  |  |  |  |  |
| ESAs | 49 (11) | 15 (7) | 34 (16) | 0.344 | 0.282 |
| Native vitamin D | 71 (17) | 27 (12) | 44 (21) | 0.292 | 0.215 |
| Active vitamin D | 105 (25) | 43 (20) | 62 (29) | 0.206 | 0.207 |
| Sevelamer | 117 (27) | 47 (22) | 70 (33) | 0.489 | 0.243 |
| Lanthanum | 31 (7) | 9 (4) | 22 (10) | 0.304 | 0.236 |
| Calcium Acetate | 112 (26) | 48 (22) | 64 (30) | 0.324 | 0.171 |
| Anticoagulants | 27 (6) | 4 (2) | 23 (11) | 0.731 | 0.371 |
| Thrombolytics | 3 (0.7) | 0 (0) | 3 (1) | 0.184 | 0.169 |
| Aspirin | 71 (17) | 21 (10) | 50 (23) | 0.53 | 0.371 |
| Digitalis | 3 (0.7) | 1 (0.5) | 2 (0.9) | 0.075 | 0.056 |
| β‐blockers | 222 (52) | 90 (42) | 132 (62) | 0.608 | 0.401 |
| Alpha Blockers | 76 (18) | 28 (13) | 48 (22) | 0.218 | 0.246 |
| Calcium channel blockers | 211 (49) | 98 (46) | 113 (53) | 0.348 | 0.141 |
| Antianginals | 28 (7) | 10 (5) | 18 (8) | 0.233 | 0.152 |
| Statins | 224 (52) | 98 (46) | 126 (59) | 0.352 | 0.264 |
| Vasodilators | 81 (19) | 27 (13) | 54 (25) | 0.407 | 0.326 |
| Thiazides | 24 (6) | 10 (5) | 14 (7) | 0.078 | 0.081 |
| Loop Diuretics | 141 (33) | 57 (27) | 84 (39) | 0.437 | 0.271 |
| Potassium Sparing Diuretics | 13 (3) | 6 (3) | 7 (3) | 0.08 | 0.027 |
| RAAS inhibitors | 172 (40) | 78 (36) | 94 (44) | 0.252 | 0.153 |
| Radio contrast media | 1 (0.2) | 0 (0) | 1 (0.5) | 0.159 | 0.097 |
| Insulin | 117 (27) | 48 (22) | 69 (32) | 0.627 | 0.222 |
| *Labs*, Mean (SD) |  |  |  |  |  |
| Albumin | 4 (1) | 4 (1) | 4 (1) | 0.056 | -0.162 |
| AST | 23 (15) | 22 (12) | 24 (17) | 0.102 | 0.122 |
| ALT | 24 (17) | 24 (13) | 25 (19) | 0.036 | 0.048 |
| Hemoglobin | 12 (1) | 12 (2) | 12 (1) | -0.29 | -0.112 |
| Phosphorus | 5(1) | 5 (1) | 5 (1) | 0.157 | 0.001 |
| PTH | 261 (202) | 213 (176) | 282 (210) | 0.578 | 0.356 |

AIDS, Acquired Immunodeficiency Syndrome; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; CCB, calcium channel blocker; CCI, Charlson Comorbidity Index; DBP, diastolic blood pressure; ESAs, erythropoietin‐stimulating agents; HIV, Human Immunodeficiency Virus; IPTW, inverse probability of treatment weighting; IQR, interquartile range; PTH, parathyroid hormone; PSM, propensity score matching; RAAS, renin-angiotensin-aldosterone system; RRT, renal replacement therapy; SBP, systolic blood pressure; SD, standard deviation; USD, United States dollar.