

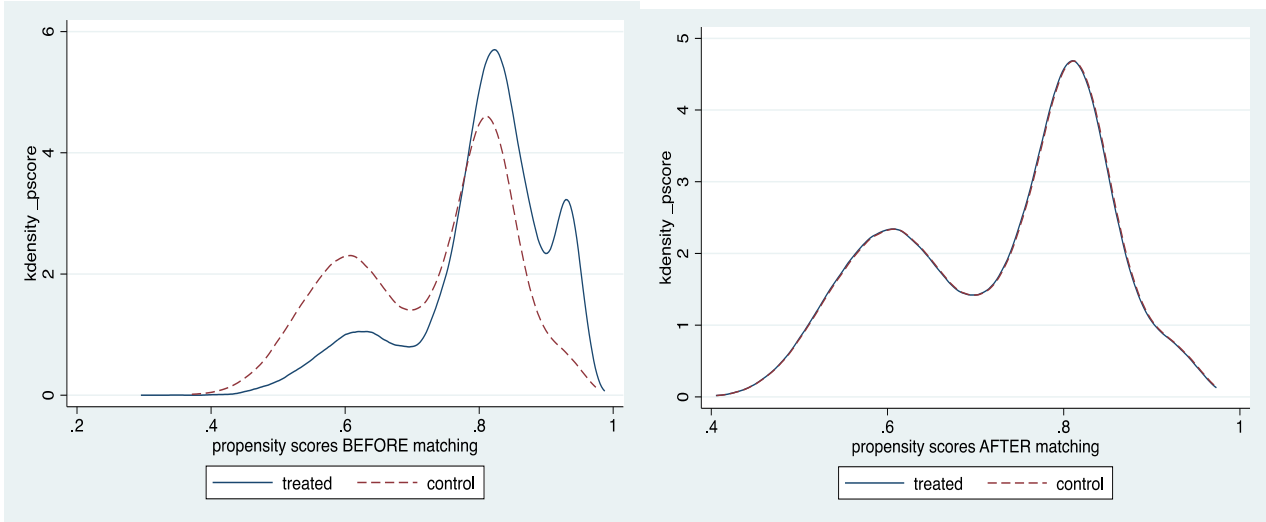


Figure S1. Propensity Scores Before and After Matching.

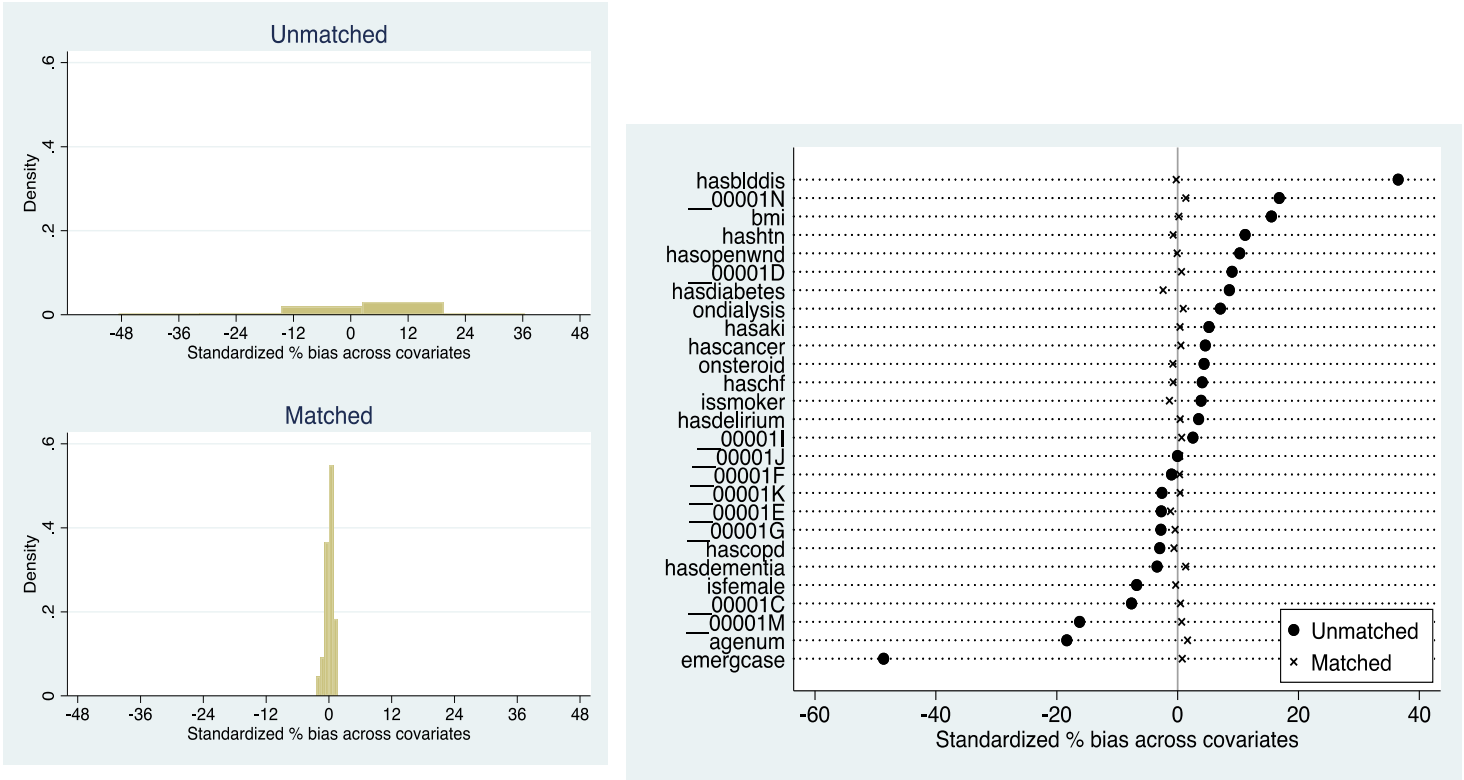


Figure S2. Standardized percentage bias across the covariates for the unmatched and matched cohorts.

| Outcomes                             | Before Matching       |                       |                         |                                     |         | After Matching        |                       |                        |                                     |                  |
|--------------------------------------|-----------------------|-----------------------|-------------------------|-------------------------------------|---------|-----------------------|-----------------------|------------------------|-------------------------------------|------------------|
|                                      | Total<br>(n = 40,527) | Spinal<br>(n = 9,847) | General<br>(n = 30,680) | OR (General vs.<br>Spinal) (95% CI) | p-value | Total<br>(n = 14,716) | Spinal<br>(n = 7,358) | General<br>(n = 7,358) | OR (General vs.<br>Spinal) (95% CI) | p-value          |
| Operative time (minutes): mean ± SD  | 64.39 (39.64)         | 59.56 (32.14)         | 65.94 (41.65)           |                                     | <0.001  | <b>62.51 (36.82)</b>  | <b>60.28 (32.93)</b>  | <b>64.73 (40.22)</b>   |                                     | <b>&lt;0.001</b> |
| Total hospital LOS (days): mean ± SD | 5.88 (12.04)          | 6.47 (14.81)          | 5.69 (11.00)            |                                     | <0.001  | <b>6.01 (10.67)</b>   | <b>6.29 (11.78)</b>   | <b>5.73 (9.42)</b>     |                                     | <b>0.001</b>     |
| 30-day complications, % (n)          |                       |                       |                         |                                     |         |                       |                       |                        |                                     |                  |
| Combined 30-day stroke/MI/death rate | 7.63 (3,094)          | 7.00 (689)            | 7.84 (2,405)            | 1.131 (1.035 - 1.234)               | 0.006   | <b>7.26 (1,068)</b>   | <b>6.59 (485)</b>     | <b>7.92 (583)</b>      | <b>1.219 (1.076 - 1.381)</b>        | <b>0.002</b>     |
| Death                                | 5.47 (2,215)          | 4.68 (461)            | 5.72 (1,754)            | 1.235 (1.111 - 1.372)               | <0.001  | <b>5.02 (739)</b>     | <b>4.44 (327)</b>     | <b>5.60 (412)</b>      | <b>1.276 (1.099 - 1.481)</b>        | <b>0.001</b>     |
| Stroke                               | 0.82 (332)            | 0.75 (74)             | 0.84 (258)              | 1.120 (0.864 - 1.452)               | 0.39    | 0.75 (110)            | 0.76 (56)             | 0.73 (54)              | 0.964 (0.664 - 1.401)               | 0.85             |
| Myocardial infarction                | 2.19 (886)            | 2.24 (221)            | 2.17 (665)              | 0.965 (0.827 - 1.126)               | 0.65    | 2.09 (308)            | 1.93 (142)            | 2.26 (166)             | 1.171 (0.935 - 1.468)               | 0.17             |
| Reoperation                          | 2.23 (905)            | 1.88 (185)            | 2.35 (720)              | 1.255 (1.066 - 1.478)               | 0.006   | 2.01 (296)            | 1.90 (140)            | 2.12 (156)             | 1.119 (0.887 - 1.411)               | 0.35             |
| Acute renal failure                  | 0.36 (146)            | 0.21 (21)             | 0.41 (125)              | 1.914 (1.205 - 3.041)               | 0.005   | <b>0.27 (40)</b>      | <b>0.18 (13)</b>      | <b>0.37 (27)</b>       | <b>2.077 (1.072 - 4.025)</b>        | <b>0.027</b>     |
| Cardiac arrest requiring CPR         | 0.69 (281)            | 0.47 (46)             | 0.77 (235)              | 1.645 (1.198 - 2.258)               | 0.002   | 0.54 (80)             | 0.49 (36)             | 0.60 (44)              | 1.229 (0.786 - 1.919)               | 0.37             |
| Unplanned intubation                 | 1.17 (476)            | 0.67 (66)             | 1.34 (410)              | 2.007 (1.546 - 2.606)               | <0.001  | 0.80 (118)            | 0.71 (52)             | 0.90 (66)              | 1.269 (0.882 - 1.825)               | 0.20             |
| Ventilator support > 48 hours        | 0.61 (248)            | 0.29 (29)             | 0.71 (219)              | 2.434 (1.651 - 3.588)               | <0.001  | 0.35 (52)             | 0.30 (22)             | 0.41 (30)              | 1.364 (0.787 - 2.364)               | 0.27             |
| DVT or thrombophlebitis              | 1.02 (415)            | 0.67 (66)             | 1.14 (349)              | 1.705 (1.309 - 2.221)               | <0.001  | <b>0.90 (132)</b>     | <b>0.72 (53)</b>      | <b>1.07 (79)</b>       | <b>1.510 (1.060 - 2.151)</b>        | <b>0.023</b>     |
| Pulmonary embolism                   | 0.77 (314)            | 0.78 (77)             | 0.77 (237)              | 0.988 (0.763 - 1.279)               | 0.93    | 0.73 (108)            | 0.77 (57)             | 0.69 (51)              | 0.893 (0.610 - 1.307)               | 0.56             |
| Post-operative delirium              | 27.03 (10,861)        | 28.04 (2,741)         | 26.70 (8,120)           | 0.935 (0.889 - 0.984)               | 0.010   | 25.58 (3,765)         | 25.80 (1,898)         | 25.37 (1,867)          | 0.978 (0.908 - 1.053)               | 0.56             |

Table S1: Surgical Outcomes for Patients Undergoing Spinal or General Anesthesia for Hip Fracture Surgery Before and After Propensity-Score Matching.

Abbreviations: OR, odds ratio; CI, confidence interval; SD, standardized deviation; LOS, length of stay; CPR, Cardiopulmonary Resuscitation; DVT, deep vein thrombosis

a: alpha level set at 0.05

| Outcomes                            | ASA I-II (N=2,706)       |                          |                                     |                  | ASA III (N=8,806)        |                          |                                     |                  | ASA IV (N=2,878)         |                          |                                     |                  |
|-------------------------------------|--------------------------|--------------------------|-------------------------------------|------------------|--------------------------|--------------------------|-------------------------------------|------------------|--------------------------|--------------------------|-------------------------------------|------------------|
|                                     | Spinal<br>(N=1,353)      | General<br>(N=1,353)     | OR (General vs.<br>Spinal) (95% CI) | p-<br>value      | Spinal<br>(N=4,403)      | General<br>(N=4,403)     | OR (General vs.<br>Spinal) (95% CI) | p-value          | Spinal<br>(N=1,439)      | General<br>(N=1,439)     | OR (General vs.<br>Spinal) (95% CI) | p-<br>value      |
| Operative time (minutes): mean ± SD | <b>62.25<br/>(31.99)</b> | <b>67.12<br/>(41.23)</b> |                                     | <b>&lt;0.001</b> | <b>60.31<br/>(32.83)</b> | <b>64.77<br/>(39.25)</b> |                                     | <b>&lt;0.001</b> | <b>58.99<br/>(33.75)</b> | <b>61.48<br/>(33.73)</b> |                                     | <b>0.048</b>     |
| Total hospital LOS (days), % (n)    | <b>5.39<br/>(4.77)</b>   | <b>4.78<br/>(6.23)</b>   |                                     | <b>0.004</b>     | <b>6.23 (10.95)</b>      | <b>5.74 (8.34)</b>       |                                     | <b>0.018</b>     | 7.11<br>(16.95)          | 6.46<br>(15.20)          |                                     | 0.28             |
| 30-day complications                |                          |                          |                                     |                  |                          |                          |                                     |                  |                          |                          |                                     |                  |
| Combined stroke/MI/death rate       | 2.29 (31)                | 2.51 (34)                | 1.103 (0.668 -<br>1.824)            | 0.71             | 6.09 (268)               | 6.43 (283)               | 1.061 (0.891 -<br>1.264)            | 0.51             | <b>11.47 (165)</b>       | <b>15.84<br/>(228)</b>   | <b>1.467 (1.178 -<br/>1.825)</b>    | <b>&lt;0.001</b> |
| Death                               | 0.81 (11)                | 1.40 (19)                | 1.8 (0.831 - 3.899)                 | 0.14             | 3.86 (170)               | 4.54 (200)               | 1.190 (0.963 -<br>1.470)            | 0.11             | <b>9.03 (130)</b>        | <b>12.72<br/>(183)</b>   | <b>1.482 (1.163 -<br/>1.887)</b>    | <b>&lt;0.001</b> |
| Stroke                              | 0.59 (8)                 | 0.67 (9)                 | 1.125 (0.434 -<br>2.916)            | 0.81             | 0.89 (39)                | 0.73 (32)                | 0.806 (0.494 -<br>1.314)            | 0.40             | 0.56 (8)                 | 0.97 (14)                | 1.857 (0.741 -<br>4.655)            | 0.20             |
| Myocardial infarction               | 1.26 (17)                | 0.81 (11)                | 0.647 (0.303 -<br>1.381)            | 0.25             | 1.93 (85)                | 1.82 (80)                | 0.940 (0.690 -<br>1.280)            | 0.69             | <b>2.43 (35)</b>         | <b>3.82 (55)</b>         | <b>1.606 (1.040 -<br/>2.480)</b>    | <b>0.032</b>     |
| Reoperation                         | 1.26 (17)                | 1.92 (26)                | 1.529 (0.830 -<br>2.819)            | 0.17             | 2.00 (88)                | 2.16 (95)                | 1.080 (0.807 -<br>1.446)            | 0.60             | 2.36 (34)                | 3.20 (46)                | 1.353 (0.868 -<br>2.108)            | 0.17             |
| Acute renal failure                 | 0.00 (0)                 | 0.00 (0)                 | Not calculated                      |                  | <b>0.05 (2)</b>          | <b>0.23 (10)</b>         | <b>22.820)</b>                      | <b>0.021</b>     | 0.76 (11)                | 0.90 (13)                | 1.182 (0.529 -<br>2.638)            | 0.68             |
| Cardiac arrest requiring CPR        | 0.07 (1)                 | 0.22 (3)                 | 3.0 (0.312 -<br>28.841)             | 0.32             | <b>0.45 (20)</b>         | <b>0.77 (34)</b>         | <b>1.70 (0.979 -<br/>2.953)</b>     | <b>0.056</b>     | 0.97 (14)                | 1.18 (17)                | 1.214 (0.599 -<br>2.463)            | 0.59             |
| Unplanned intubation                | 0.30 (4)                 | 0.74 (10)                | 2.5 (0.784 - 7.971)                 | 0.11             | 0.64 (28)                | 0.89 (39)                | 1.407 (0.859 -<br>2.305)            | 0.18             | 1.32 (19)                | 1.67 (24)                | 1.278 (0.690 -<br>2.368)            | 0.44             |
| Ventilator support > 48 hours       | 0.22 (3)                 | 0.15 (2)                 | 0.667 (0.111 -<br>3.990)            | 0.65             | 0.25 (11)                | 0.36 (16)                | 1.455 (0.675 -<br>3.134)            | 0.34             | 0.56 (8)                 | 0.83 (12)                | 1.50 (0.613 -<br>3.670)             | 0.37             |
| DVT or thrombophlebitis             | <b>0.52 (7)</b>          | <b>1.33 (18)</b>         | <b>2.571 (1.074 -<br/>6.156)</b>    | <b>0.027</b>     | <b>0.84 (37)</b>         | <b>1.34 (59)</b>         | <b>1.611 (1.063 -<br/>2.442)</b>    | <b>0.024</b>     | 0.63 (9)                 | 1.04 (15)                | 1.667 (0.729 -<br>3.808)            | 0.22             |
| Pulmonary embolism                  | 0.52 (7)                 | 0.81 (11)                | 1.667 (0.606 -<br>4.586)            | 0.34             | 0.82 (36)                | 0.89 (39)                | 1.083 (0.689 -<br>1.704)            | 0.73             | 0.83 (12)                | 0.83 (12)                | 1.0 (0.449 - 2.226)                 | 1.00             |
| Post-operative delirium             | 15.37<br>(208)           | 14.19<br>(192)           | 0.908 (0.731 -<br>1.126)            | 0.39             | 26.82 (1,181)            | 25.69<br>(1,131)         | 0.945 (0.860 -<br>1.037)            | 0.23             | 32.45 (467)              | 34.26<br>(493)           | 1.083 (0.929 -<br>1.262)            | 0.30             |

Table S2: Subgroup Analysis of Outcomes for Patients Who Received General or Spinal Anesthesia for Hip Fracture Surgery, Stratified by ASA Score

Abbreviations: OR, odds ratio; MI, myocardial infarction; LOS, length of stay; DVT, deep vein thrombosis

a: alpha level set at 0.05

b: Odds ratio not calculated. Insufficient variation to calculate.