**Long-term outcomes with spinal versus general anesthesia for hip fracture surgery**

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# Appendix Figure 1. CONSORT diagram

A flowchart of patient's surgery

Description automatically generated with low confidence

|  | *All participants (N=1,599)* | | |
| --- | --- | --- | --- |
|  | *60 Day (31-90 day window)* | *180 Day (135-225 day window)* | *365 Day (305-425 day window)* | |
| *Status* | *No. (%)* | *No. (%)* | *No. (%)* | |
| Died by mid-window | 63 (3.9) | 132 (8.3) | 190 (11.9) | |
| Interview completed | 1,381 (86.4) | 1,269 (79.4) | 1,170 (73.2) | |
| Known alive at start of window (walking status unknown) | 112 (7.0) | 111 (6.9) | 67 (4.2) | |
| Withdrawn prior to window (vital status unknown) | 23 (1.4) | 39 (2.4) | 62 (3.9) | |
| Unknown | 20 (1.3) | 48 (3.0) | 110 (6.9) | |
| Appendix Table 1. Recorded patient outcomes by follow-up period | | | |

*Hazard ratio for death at day 365, spinal versus general*

*anesthesia 95% CI*

2.59a 0.25 - 27.1

a. Cox proportional hazards model adjusted for sex, fracture type, country, and a time-treatment interaction.

# Appendix Table 2. Sensitivity analysis. Hazard ratio for death at day 365 between spinal versus general anesthesia among patients 85 years of age or older, adjusted for time-treatment interaction

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *Day after trial enrollment* | *Randomized to*  *spinal anesthesia* | | *Randomized to*  *general anesthesia* | |
|  |  | *Number of patients* | *No. (%)* | *Number of patients* | *No. (%)* |
| *Able to walk without human assistance* | Day 60 | 628 | 551 (87.7) | 649 | 574 (88.4) |
| Day 180 | 600 | 542 (90.3) | 621 | 561 (90.3) |
| Day 365 | 586 | 519 (88.6) | 584 | 530 (90.8) |
|  | | | | | |
| **Appendix Table 3.** Recovery of independence in ambulation over time within the overall study sample | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Randomized to spinal anesthesia* | | *Randomized to general anesthesia* | |
| *Days after trial enrollment* | *No.* | *Median WHODAS*  *2.0 score (IQR)* | *No.* | *Median WHODAS 2.0 score (IQR)* |
| 60 | 225 | 22.7 (8.3, 43.2) | 241 | 18.2 (6.3, 31.8) |
| 180 | 249 | 10.4 (2.3, 27.1) | 274 | 10.4 (2.1, 27.3) |
| 365 | 280 | 10.4 (2.1, 29.2) | 276 | 8.3 (0.0, 22.9) |
| IQR: interquartile range, WHODAS: 12-item World Health Organization Disability Schedule 2.0 scale; scores range from 0 to 100, with lower scores indicating lower degrees of disability. | | | | |
| Appendix Table 4. Median 12-item WHODAS 2.0 scores between groups at 60, 180, and 365 days | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Spinal N=795** | | | | | |  | **General N=805** | | | | | |
|  | **Severity gradea** | | | | | |  | **Severity gradea** | | | | | |
| **System organ class** | **1** | **2** | **3** | **4** | **5** | **All grades** |  | **1** | **2** | **3** | **4** | **5** | **All grades** |
| Blood and lymphatic system disorders | 33 | 26 | 79 | 1 | 0 | 139 |  | 35 | 30 | 79 | 0 | 0 | 144 |
| Cardiac disorders | 13 | 29 | 18 | 5 | 5 | 70 |  | 7 | 15 | 7 | 10 | 7 | 46 |
| Gastrointestinal disorders | 35 | 24 | 17 | 3 | 4 | 83 |  | 51 | 27 | 16 | 3 | 0 | 97 |
| General disorders and administration site  conditions | 36 | 33 | 14 | 0 | 63 | 146 |  | 39 | 22 | 6 | 1 | 68 | 136 |
| Infections and infestations | 23 | 30 | 35 | 5 | 5 | 98 |  | 14 | 38 | 24 | 4 | 1 | 81 |
| Injury, poisoning and  procedural  complications | 20 | 26 | 28 | 2 | 2 | 78 |  | 29 | 24 | 40 | 4 | 2 | 99 |
| Metabolism and nutrition disorders | 31 | 15 | 17 | 3 | 1 | 67 |  | 27 | 12 | 16 | 5 | 1 | 61 |
| Nervous system disorders | 28 | 24 | 19 | 2 | 5 | 78 |  | 22 | 18 | 13 | 1 | 2 | 56 |
| Psychiatric disorders | 22 | 21 | 7 | 1 | 0 | 51 |  | 24 | 23 | 23 | 1 | 0 | 71 |
| Renal and  urinary disorders | 16 | 20 | 3 | 3 | 1 | 43 |  | 16 | 25 | 4 | 1 | 1 | 47 |
| Respiratory, thoracic and mediastinal disorders | 17 | 19 | 16 | 5 | 2 | 59 |  | 27 | 18 | 24 | 6 | 7 | 82 |
| Surgical and medical procedures | 27 | 35 | 16 | 1 | 0 | 79 |  | 24 | 38 | 23 | 1 | 0 | 86 |
| Vascular disorders | 15 | 25 | 24 | 1 | 2 | 67 |  | 14 | 15 | 15 | 2 | 2 | 48 |
| Other organ systemsb | 23 | 27 | 15 | 2 | 0 | 67 |  | 26 | 19 | 16 | 1 | 1 | 63 |
| Totals | 339 | 354 | 308 | 34 | 90 | 1125 |  | 355 | 324 | 306 | 40 | 92 | 1117 |

aSeverity grades range from 1 (mild) to 5 (death). bIncludes congenital, familial, and genetic disorders; eye

disorders; hepatobiliary disorders; investigations; musculoskeletal and connective tissue disorders; neoplasms, benign, malignant, and unspecified; reproductive system and breast disorders. All events with a listed start date through post randomization day 365 are shown. Where subjects had more than one event reported within a given grade, all reported

events are included.

# Appendix Table 5. Site-reported adverse events, by treatment arm, grouped by Medical Dictionary for Regulatory Activities System Organ Class

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|  |  |  |
| --- | --- | --- |
|  | *Vital status at or beyond 365 day interview after randomization* | |
|  | **Known No. = 1427** | **Unknown No. = 172** |
| Randomized to general anesthesia | 713/1427 (50.0) | 91/172 (52.9) |
| Randomized to spinal anesthesia | 714/1427 (50.0) | 81/172 (47.1) |
| Age at randomization, years |  |  |
| <65 | 187/1427 (13.1) | 25/171 (14.6) |
| 65-74 | 329/1427 (23.1) | 55/171 (32.2) |
| 75-84 | 476/1427 (33.4) | 52/171 (30.4) |
| 85 and older | 435/1427 (30.5) | 39/171 (22.8) |
| Male sex | 475/1426 (33.3) | 51/172 (29.7) |
| Race |  |  |
| White | 1230/1376 (89.4) | 143/159 (89.9) |
| Black | 111/1376 (8.1) | 11/159 (6.9) |
| Other or more than one race | 35/1376 (2.5) | 5/159 (3.1) |
| Hispanic | 23/1352 (1.7) | 4/160 (2.5) |
| Enrolled at a Canadian site | 371/1427 (26.0) | 50/172 (29.1) |
| Number of coexisting conditionsa | 1 (0 - 1) | 1 (0 - 1) |
| American Society of Anesthesiologists Physical Status Classification |  |  |
| I or II, no or mild systemic disease | 478/1421 (33.6) | 61/154 (39.6) |
| III or IV, moderate or severe systemic disease | 943/1421 (66.4) | 93/154 (60.4) |
| Do Not Resuscitate status documented | 220/1427 (15.4) | 26/171 (15.2) |
| Use of assistive walking device when ambulating 10 feet or across a room 2 weeks prior to fracture | 450/1402 (32.1) | 47/169 (27.8) |
| 3D-CAM assessment positive for delirium prior to randomizationb | 176/1337 (13.2) | 24/161 (14.9) |
| Pre-admission residence |  |  |
| Home or retirement home | 1228/1349 (91.0) | 149/161 (92.5) |
| Nursing home or other location | 121/1349 (9.0) | 12/161 (7.5) |

Data are No. / total No. (%) or median (IQR).

aIncluded coexisting conditions are chronic pulmonary disease, disseminated cancer, diabetes mellitus, coronary artery disease, congestive heart failure, cerebrovascular disease, dementia, and creatinine > 2mg/dL or current dialysis. b3D-CAM: 3-minute Diagnostic Interview for

Confusion Assessment Method.

# Appendix Table 6. Comparison of trial participant characteristics with- and without- missing vital status data at 365 days after randomization

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