Impact of Body Mass Index on Outcomes in Hospitalized Lung Cancer Patients: A Retrospective Analysis Using a National Inpatient Database

Analysis for RCOP NIS Med4

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## Preamble:

* **Reference Papers:**
  1. [Salman et al. (2025)](https://journals.lww.com/10.1097/MCA.0000000000001479)
  2. [Persaud et al. (2019)](https://www.ahajournals.org/doi/full/10.1161/STROKEAHA.119.024638)
  3. [Sreenivasan et al. (2022)](https://linkinghub.elsevier.com/retrieve/pii/S0002914922004088)
* **Study Objective**: Examine the impact of body mass index (BMI) on outcomes among inpatient admissions with lung cancer.
* **Data Source**: Cross-sectional analysis of the National Inpatient Sample (NIS) from 2018 to 2020.
* **Patient Selection**: Included all inpatient admissions with a primary diagnosis of lung cancer.
* **BMI Categories**:
  + Underweight: BMI ≤19.9 kg/m²
  + Normal Weight: BMI 20.0 to 24.9 kg/m²
  + Overweight: BMI 25.0 to 29.9 kg/m²
  + Class I Obesity: BMI 30.0 to 34.9 kg/m²
  + Class II Obesity: BMI 35.0 to 39.9 kg/m²
  + Class III Obesity: BMI ≥40.0 kg/m²
* **Outcomes**:
  + In-hospital all-cause mortality
  + Total hospital length of stay (days)
  + Total charge, inflation adjusted to 2020 ($)
* **Statistical Analysis**: Multiple logistic and linear regression to determine the independent association of BMI categories with the outcomes of interest. Models were adjusted for the following confounders:
  + Demographics: Age, sex, race, residential income, and insurance.
  + Hospital Characteristics: Hospital region, bed size, location, and teaching status.
  + Comorbidities and Clinical Variables: Charlson comorbidity index, hypertension, diabetes mellitus, smoking status, previous heart failure, coronary artery disease, chronic pulmonary disease, chronic kidney disease, peripheral vascular disease, anemia, and previous stroke/TIA.
* **Software:** All analyses were performed using R Version 4.4.1 (R Foundation for Statistical Computing, Vienna, Austria)

## Baseline Table:

| **Characteristic** | **Normal weight (BMI 20.0-24.9kg/m²)** N = 15,175*1* | **Underweight (BMI ≤19.9kg/m²)** N = 26,285*1* | **Overweight (BMI 25.0-29.9kg/m²)** N = 9,220*1* | **Class I obesity (BMI 30.0-34.9kg/m²)** N = 12,940*1* | **Class II obesity (BMI 35.0-39.9kg/m²)** N = 8,155*1* | **Class III obesity (BMI ≥40.0kg/m²)** N = 8,830*1* | **p-value***2* | **Overall** N = 80,605*1* |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age, y | 70 (11) | 69 (11) | 69 (10) | 68 (9) | 66 (9) | 65 (10) | <0.001 | 68 (10) |
| Sex |  |  |  |  |  |  | <0.001 |  |
| Female | 6,165 (41%) | 13,200 (50%) | 4,125 (45%) | 6,730 (52%) | 4,585 (56%) | 5,945 (67%) |  | 40,750 (51%) |
| Male | 9,010 (59%) | 13,085 (50%) | 5,095 (55%) | 6,210 (48%) | 3,570 (44%) | 2,885 (33%) |  | 39,855 (49%) |
| Race |  |  |  |  |  |  | <0.001 |  |
| Asian or Pacific Islander | 680 (4.6%) | 1,290 (5.0%) | 140 (1.5%) | 165 (1.3%) | 80 (1.0%) | 65 (0.8%) |  | 2,420 (3.1%) |
| Black | 2,690 (18%) | 5,140 (20%) | 1,225 (14%) | 1,455 (11%) | 1,045 (13%) | 1,230 (14%) |  | 12,785 (16%) |
| Hispanic | 755 (5.1%) | 1,160 (4.5%) | 525 (5.8%) | 630 (5.0%) | 385 (4.8%) | 395 (4.6%) |  | 3,850 (4.9%) |
| Other | 435 (2.9%) | 790 (3.1%) | 230 (2.5%) | 270 (2.1%) | 150 (1.9%) | 165 (1.9%) |  | 2,040 (2.6%) |
| White | 10,340 (69%) | 17,360 (67%) | 6,915 (77%) | 10,160 (80%) | 6,335 (79%) | 6,780 (79%) |  | 57,890 (73%) |
| Residential income |  |  |  |  |  |  | <0.001 |  |
| $1 - $51,999 | 4,800 (32%) | 8,925 (35%) | 2,615 (29%) | 3,535 (28%) | 2,180 (27%) | 2,795 (32%) |  | 24,850 (31%) |
| $52,000 - $65,999 | 4,025 (27%) | 6,775 (26%) | 2,470 (27%) | 3,530 (28%) | 2,480 (31%) | 2,515 (29%) |  | 21,795 (27%) |
| $66,000 - $87,999 | 3,230 (22%) | 5,535 (21%) | 2,280 (25%) | 3,175 (25%) | 1,955 (24%) | 2,140 (25%) |  | 18,315 (23%) |
| $88,000 or more | 2,890 (19%) | 4,600 (18%) | 1,720 (19%) | 2,580 (20%) | 1,415 (18%) | 1,240 (14%) |  | 14,445 (18%) |
| Expected primary payer |  |  |  |  |  |  | <0.001 |  |
| Medicaid | 1,870 (12%) | 3,970 (15%) | 810 (8.8%) | 915 (7.1%) | 685 (8.4%) | 975 (11%) |  | 9,225 (11%) |
| Medicare | 9,855 (65%) | 16,650 (63%) | 5,990 (65%) | 8,570 (66%) | 4,975 (61%) | 5,420 (62%) |  | 51,460 (64%) |
| Other | 815 (5.4%) | 1,530 (5.8%) | 510 (5.5%) | 600 (4.6%) | 340 (4.2%) | 365 (4.1%) |  | 4,160 (5.2%) |
| Private | 2,625 (17%) | 4,100 (16%) | 1,905 (21%) | 2,850 (22%) | 2,150 (26%) | 2,050 (23%) |  | 15,680 (19%) |
| Hospital region |  |  |  |  |  |  | <0.001 |  |
| Midwest | 4,070 (27%) | 6,060 (23%) | 2,495 (27%) | 3,995 (31%) | 2,505 (31%) | 2,585 (29%) |  | 21,710 (27%) |
| Northeast | 3,130 (21%) | 5,345 (20%) | 1,860 (20%) | 2,430 (19%) | 1,715 (21%) | 1,795 (20%) |  | 16,275 (20%) |
| South | 5,755 (38%) | 10,910 (42%) | 3,665 (40%) | 4,825 (37%) | 2,760 (34%) | 3,225 (37%) |  | 31,140 (39%) |
| West | 2,220 (15%) | 3,970 (15%) | 1,200 (13%) | 1,690 (13%) | 1,175 (14%) | 1,225 (14%) |  | 11,480 (14%) |
| Hospital bed size |  |  |  |  |  |  | 0.12 |  |
| Large | 8,450 (56%) | 14,505 (55%) | 5,105 (55%) | 7,520 (58%) | 4,810 (59%) | 4,980 (56%) |  | 45,370 (56%) |
| Medium | 4,110 (27%) | 7,240 (28%) | 2,480 (27%) | 3,435 (27%) | 2,140 (26%) | 2,465 (28%) |  | 21,870 (27%) |
| Small | 2,615 (17%) | 4,540 (17%) | 1,635 (18%) | 1,985 (15%) | 1,205 (15%) | 1,385 (16%) |  | 13,365 (17%) |
| Hospital location and teaching status |  |  |  |  |  |  | <0.001 |  |
| Rural | 875 (5.8%) | 1,555 (5.9%) | 605 (6.6%) | 530 (4.1%) | 325 (4.0%) | 530 (6.0%) |  | 4,420 (5.5%) |
| Urban, non-teaching | 2,505 (17%) | 4,410 (17%) | 1,570 (17%) | 1,670 (13%) | 940 (12%) | 1,270 (14%) |  | 12,365 (15%) |
| Urban, teaching | 11,795 (78%) | 20,320 (77%) | 7,045 (76%) | 10,740 (83%) | 6,890 (84%) | 7,030 (80%) |  | 63,820 (79%) |
| Charlson Comorbidity Index | 5.82 (2.28) | 5.68 (2.31) | 5.71 (2.47) | 4.99 (2.36) | 5.15 (2.48) | 5.55 (2.61) | <0.001 | 5.53 (2.40) |
| Hypertension | 7,435 (49%) | 11,485 (44%) | 5,070 (55%) | 8,265 (64%) | 5,365 (66%) | 5,465 (62%) | <0.001 | 43,085 (53%) |
| Diabetes mellitus | 2,905 (19%) | 2,920 (11%) | 2,700 (29%) | 4,615 (36%) | 3,570 (44%) | 4,060 (46%) | <0.001 | 20,770 (26%) |
| Smoking status | 4,260 (28%) | 9,580 (36%) | 2,165 (23%) | 2,630 (20%) | 1,510 (19%) | 1,510 (17%) | <0.001 | 21,655 (27%) |
| Previous heart failure | 825 (5.4%) | 1,725 (6.6%) | 685 (7.4%) | 840 (6.5%) | 660 (8.1%) | 1,055 (12%) | <0.001 | 5,790 (7.2%) |
| Coronary artery disease | 2,780 (18%) | 3,975 (15%) | 2,155 (23%) | 3,385 (26%) | 1,950 (24%) | 1,800 (20%) | <0.001 | 16,045 (20%) |
| Chronic Pulmonary Disease | 7,750 (51%) | 15,705 (60%) | 4,710 (51%) | 6,875 (53%) | 4,490 (55%) | 5,185 (59%) | <0.001 | 44,715 (55%) |
| Chronic Kidney Disease | 1,720 (11%) | 2,345 (8.9%) | 1,295 (14%) | 1,750 (14%) | 1,155 (14%) | 1,510 (17%) | <0.001 | 9,775 (12%) |
| Peripheral Vascular Disease | 1,315 (8.7%) | 2,710 (10%) | 1,030 (11%) | 1,265 (9.8%) | 660 (8.1%) | 555 (6.3%) | <0.001 | 7,535 (9.3%) |
| Anemia | 6,465 (43%) | 10,965 (42%) | 3,230 (35%) | 3,105 (24%) | 1,655 (20%) | 2,175 (25%) | <0.001 | 27,595 (34%) |
| Previous stroke/TIA | 1,210 (8.0%) | 1,870 (7.1%) | 790 (8.6%) | 995 (7.7%) | 495 (6.1%) | 550 (6.2%) | 0.014 | 5,910 (7.3%) |
| *1*Mean (SD); n (%) | | | | | | | | |
| *2*Design-based KruskalWallis test; Pearson's X^2: Rao & Scott adjustment | | | | | | | | |

## Outcomes Table:

| **Characteristic** | **Normal weight (BMI 20.0-24.9kg/m²)** N = 15,175*1* | **Underweight (BMI ≤19.9kg/m²)** N = 26,285*1* | **Overweight (BMI 25.0-29.9kg/m²)** N = 9,220*1* | **Class I obesity (BMI 30.0-34.9kg/m²)** N = 12,940*1* | **Class II obesity (BMI 35.0-39.9kg/m²)** N = 8,155*1* | **Class III obesity (BMI ≥40.0kg/m²)** N = 8,830*1* | **p-value***2* | **Overall** N = 80,605*1* |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Died during hospitalization | 1,300 (8.6%) | 2,945 (11%) | 705 (7.6%) | 445 (3.4%) | 280 (3.4%) | 535 (6.1%) | <0.001 | 6,210 (7.7%) |
| Length of stay (days) | 6.0 (3.0, 10.0) | 6.0 (3.0, 9.0) | 5.0 (3.0, 9.0) | 4.0 (3.0, 7.0) | 4.0 (3.0, 7.0) | 5.0 (3.0, 9.0) | <0.001 | 5.0 (3.0, 9.0) |
| Inflation-adjusted total charge ($) | 60,135 (33,103, 106,165) | 56,346 (31,448, 98,634) | 66,239 (38,394, 113,951) | 72,214 (45,508, 114,848) | 73,046 (45,801, 117,335) | 77,534 (47,588, 132,023) | <0.001 | 65,325 (37,382, 110,666) |
| *1*n (%); Median (Q1, Q3) | | | | | | | | |
| *2*Pearson's X^2: Rao & Scott adjustment; Design-based KruskalWallis test | | | | | | | | |

## Multivariable Logistic Regression:

### All-Cause Mortality:

| **Characteristic** | **OR***1* | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| BMI category |  |  |  |
| Normal weight (BMI 20.0-24.9kg/m²) | — | — |  |
| Underweight (BMI ≤19.9kg/m²) | 1.39 | 1.19, 1.64 | <0.001 |
| Overweight (BMI 25.0-29.9kg/m²) | 0.93 | 0.75, 1.16 | 0.5 |
| Class I obesity (BMI 30.0-34.9kg/m²) | 0.50 | 0.39, 0.66 | <0.001 |
| Class II obesity (BMI 35.0-39.9kg/m²) | 0.50 | 0.36, 0.68 | <0.001 |
| Class III obesity (BMI ≥40.0kg/m²) | 0.82 | 0.63, 1.07 | 0.14 |
| Age, y | 1.01 | 1.00, 1.01 | 0.13 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 1.12 | 0.99, 1.27 | 0.066 |
| Race |  |  |  |
| Asian or Pacific Islander | — | — |  |
| Black | 0.80 | 0.58, 1.10 | 0.2 |
| Hispanic | 0.84 | 0.58, 1.22 | 0.4 |
| Other | 1.04 | 0.69, 1.57 | 0.9 |
| White | 0.78 | 0.59, 1.04 | 0.088 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 0.99 | 0.84, 1.17 | >0.9 |
| $66,000 - $87,999 | 0.89 | 0.75, 1.07 | 0.2 |
| $88,000 or more | 0.93 | 0.76, 1.12 | 0.4 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 0.92 | 0.73, 1.15 | 0.5 |
| Other | 1.69 | 1.26, 2.26 | <0.001 |
| Private | 1.24 | 0.99, 1.56 | 0.066 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 1.27 | 1.05, 1.53 | 0.012 |
| South | 0.92 | 0.77, 1.08 | 0.3 |
| West | 1.23 | 1.00, 1.50 | 0.050 |
| Hospital bed size |  |  |  |
| Large | — | — |  |
| Medium | 1.00 | 0.86, 1.16 | >0.9 |
| Small | 1.05 | 0.88, 1.25 | 0.6 |
| Hospital location and teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 0.84 | 0.62, 1.14 | 0.3 |
| Urban, teaching | 0.78 | 0.60, 1.03 | 0.077 |
| Charlson Comorbidity Index | 1.23 | 1.19, 1.26 | <0.001 |
| Hypertension |  |  |  |
| No | — | — |  |
| Yes | 0.87 | 0.75, 1.00 | 0.054 |
| Diabetes mellitus |  |  |  |
| No | — | — |  |
| Yes | 0.76 | 0.64, 0.90 | 0.002 |
| Smoking status |  |  |  |
| No | — | — |  |
| Yes | 0.65 | 0.56, 0.76 | <0.001 |
| Previous heart failure |  |  |  |
| No | — | — |  |
| Yes | 1.05 | 0.83, 1.32 | 0.7 |
| Coronary artery disease |  |  |  |
| No | — | — |  |
| Yes | 0.98 | 0.83, 1.16 | 0.9 |
| Chronic Pulmonary Disease |  |  |  |
| No | — | — |  |
| Yes | 0.92 | 0.81, 1.04 | 0.2 |
| Chronic Kidney Disease |  |  |  |
| No | — | — |  |
| Yes | 0.80 | 0.64, 1.00 | 0.046 |
| Peripheral Vascular Disease |  |  |  |
| No | — | — |  |
| Yes | 0.72 | 0.58, 0.90 | 0.004 |
| Anemia |  |  |  |
| No | — | — |  |
| Yes | 1.13 | 0.99, 1.28 | 0.067 |
| Previous stroke/TIA |  |  |  |
| No | — | — |  |
| Yes | 0.73 | 0.57, 0.94 | 0.014 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | |

## Multivariable Linear Regression:

### Length of Stay:

| **Characteristic** | **Beta** | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| BMI category |  |  |  |
| Normal weight (BMI 20.0-24.9kg/m²) | — | — |  |
| Underweight (BMI ≤19.9kg/m²) | -0.20 | -0.52, 0.13 | 0.2 |
| Overweight (BMI 25.0-29.9kg/m²) | -0.20 | -0.61, 0.20 | 0.3 |
| Class I obesity (BMI 30.0-34.9kg/m²) | -1.2 | -1.6, -0.86 | <0.001 |
| Class II obesity (BMI 35.0-39.9kg/m²) | -1.3 | -1.6, -0.90 | <0.001 |
| Class III obesity (BMI ≥40.0kg/m²) | -0.02 | -0.45, 0.42 | >0.9 |
| Age, y | -0.01 | -0.02, 0.01 | 0.3 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 0.23 | 0.03, 0.43 | 0.025 |
| Race |  |  |  |
| Asian or Pacific Islander | — | — |  |
| Black | 0.61 | -0.13, 1.4 | 0.10 |
| Hispanic | 0.73 | -0.13, 1.6 | 0.10 |
| Other | 1.2 | 0.24, 2.1 | 0.014 |
| White | -0.01 | -0.69, 0.67 | >0.9 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 0.06 | -0.20, 0.32 | 0.7 |
| $66,000 - $87,999 | 0.02 | -0.28, 0.32 | 0.9 |
| $88,000 or more | 0.00 | -0.33, 0.34 | >0.9 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | -0.50 | -0.92, -0.08 | 0.019 |
| Other | -0.25 | -0.89, 0.38 | 0.4 |
| Private | -0.66 | -1.1, -0.23 | 0.003 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 0.70 | 0.38, 1.0 | <0.001 |
| South | 0.64 | 0.39, 0.90 | <0.001 |
| West | 0.28 | -0.08, 0.63 | 0.13 |
| Hospital bed size |  |  |  |
| Large | — | — |  |
| Medium | -0.59 | -0.84, -0.34 | <0.001 |
| Small | -0.93 | -1.2, -0.65 | <0.001 |
| Hospital location and teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 0.67 | 0.19, 1.1 | 0.006 |
| Urban, teaching | 1.2 | 0.73, 1.6 | <0.001 |
| Charlson Comorbidity Index | 0.26 | 0.21, 0.31 | <0.001 |
| Hypertension |  |  |  |
| No | — | — |  |
| Yes | -0.14 | -0.37, 0.10 | 0.3 |
| Diabetes mellitus |  |  |  |
| No | — | — |  |
| Yes | -0.32 | -0.55, -0.09 | 0.007 |
| Smoking status |  |  |  |
| No | — | — |  |
| Yes | -0.02 | -0.26, 0.22 | 0.9 |
| Previous heart failure |  |  |  |
| No | — | — |  |
| Yes | 0.38 | -0.01, 0.76 | 0.057 |
| Coronary artery disease |  |  |  |
| No | — | — |  |
| Yes | 0.07 | -0.19, 0.33 | 0.6 |
| Chronic Pulmonary Disease |  |  |  |
| No | — | — |  |
| Yes | 0.62 | 0.41, 0.82 | <0.001 |
| Chronic Kidney Disease |  |  |  |
| No | — | — |  |
| Yes | -0.52 | -0.89, -0.15 | 0.006 |
| Peripheral Vascular Disease |  |  |  |
| No | — | — |  |
| Yes | -0.38 | -0.73, -0.03 | 0.032 |
| Anemia |  |  |  |
| No | — | — |  |
| Yes | 1.9 | 1.7, 2.1 | <0.001 |
| Previous stroke/TIA |  |  |  |
| No | — | — |  |
| Yes | -0.30 | -0.67, 0.08 | 0.12 |
| *1*CI = Confidence Interval | | | |

### Inflation Adjusted Total Charge:

| **Characteristic** | **Beta** | **95% CI***1* | **p-value** |
| --- | --- | --- | --- |
| BMI category |  |  |  |
| Normal weight (BMI 20.0-24.9kg/m²) | — | — |  |
| Underweight (BMI ≤19.9kg/m²) | -5,302 | -11,303, 699 | 0.083 |
| Overweight (BMI 25.0-29.9kg/m²) | 7,532 | 293, 14,772 | 0.041 |
| Class I obesity (BMI 30.0-34.9kg/m²) | 9,372 | 2,259, 16,484 | 0.010 |
| Class II obesity (BMI 35.0-39.9kg/m²) | 8,813 | 2,006, 15,619 | 0.011 |
| Class III obesity (BMI ≥40.0kg/m²) | 25,566 | 17,854, 33,279 | <0.001 |
| Age, y | -387 | -576, -199 | <0.001 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 6,240 | 3,212, 9,268 | <0.001 |
| Race |  |  |  |
| Asian or Pacific Islander | — | — |  |
| Black | -1,012 | -11,494, 9,470 | 0.8 |
| Hispanic | 20,350 | 6,357, 34,343 | 0.004 |
| Other | 15,799 | 840, 30,758 | 0.038 |
| White | -3,594 | -12,856, 5,668 | 0.4 |
| Income quartile |  |  |  |
| $1 - $51,999 | — | — |  |
| $52,000 - $65,999 | 3,292 | -653, 7,236 | 0.10 |
| $66,000 - $87,999 | -416 | -4,724, 3,892 | 0.8 |
| $88,000 or more | 6,599 | -287, 13,484 | 0.060 |
| Insurance payer |  |  |  |
| Medicaid | — | — |  |
| Medicare | 4,788 | -729, 10,305 | 0.089 |
| Other | -3,574 | -10,872, 3,725 | 0.3 |
| Private | 2,966 | -2,843, 8,774 | 0.3 |
| Hospital region |  |  |  |
| Midwest | — | — |  |
| Northeast | 22,925 | 17,087, 28,763 | <0.001 |
| South | 18,845 | 14,189, 23,500 | <0.001 |
| West | 46,070 | 39,183, 52,957 | <0.001 |
| Hospital bed size |  |  |  |
| Large | — | — |  |
| Medium | -14,560 | -19,169, -9,952 | <0.001 |
| Small | -22,853 | -28,114, -17,592 | <0.001 |
| Hospital location and teaching status |  |  |  |
| Rural | — | — |  |
| Urban, non-teaching | 32,792 | 26,828, 38,755 | <0.001 |
| Urban, teaching | 41,395 | 36,472, 46,318 | <0.001 |
| Charlson Comorbidity Index | -840 | -1,621, -59 | 0.035 |
| Hypertension |  |  |  |
| No | — | — |  |
| Yes | -2,616 | -7,243, 2,011 | 0.3 |
| Diabetes mellitus |  |  |  |
| No | — | — |  |
| Yes | 481 | -3,386, 4,348 | 0.8 |
| Smoking status |  |  |  |
| No | — | — |  |
| Yes | -3,565 | -7,183, 53 | 0.053 |
| Previous heart failure |  |  |  |
| No | — | — |  |
| Yes | -1,098 | -6,829, 4,633 | 0.7 |
| Coronary artery disease |  |  |  |
| No | — | — |  |
| Yes | 8,127 | 2,891, 13,363 | 0.002 |
| Chronic Pulmonary Disease |  |  |  |
| No | — | — |  |
| Yes | 13,488 | 9,933, 17,043 | <0.001 |
| Chronic Kidney Disease |  |  |  |
| No | — | — |  |
| Yes | -1,319 | -7,861, 5,223 | 0.7 |
| Peripheral Vascular Disease |  |  |  |
| No | — | — |  |
| Yes | 5,452 | -3,415, 14,318 | 0.2 |
| Anemia |  |  |  |
| No | — | — |  |
| Yes | 22,529 | 18,528, 26,530 | <0.001 |
| Previous stroke/TIA |  |  |  |
| No | — | — |  |
| Yes | -10,861 | -15,612, -6,111 | <0.001 |
| *1*CI = Confidence Interval | | | |