**Table 1:** Baseline characteristics by access site for rotational atherectomy performed in England and Wales in 2013-2014.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Femoral**  **(n=1,850)** | **Radial**  **(n=2,452)** | **p-value** |
| Age (years) ±SD | 74.1±9.3 | 73.1±9.5 | <0.001 |
| Female gender, no. (%) | 590 (32.0) | 611 (24.9) | <0.001 |
| BMI (kg/m2) ±SD | 27.9±6.9 | 28.4±6.7 | 0.023 |
| Hypertension, no. (%) | 1,309 (75.5) | 1,644 (71.9) | 0.011 |
| Diabetes, no. (%) | 609 (34.1) | 743 (31.2) | 0.049 |
| Previous MI, no. (%) | 822 (46.8) | 923 (40.3) | <0.001 |
| Q wave on ECG, no. (%) | 157 (9.4) | 244 (10.9) | 0.136 |
| Previous stroke, no. (%) | 149 (8.6) | 189 (8.3) | 0.731 |
| Peripheral vascular disease, no. (%) | 223 (12.9) | 291 (12.7) | 0.924 |
| Renal disease, no. (%) | 169 (9.6) | 118 (5.1) | <0.001 |
| Creatinine (µmol/L) ±SD | 116.9±106.6 | 102.7±75.4 | <0.001 |
| Previous PCI, no. (%) | 672 (37.1) | 779 (32.8) | 0.004 |
| Previous CABG, no. (%) | 345 (18.9) | 271 (11.3) | <0.001 |
| Ejection fraction <50%, no. (%) | 488 (42.0) | 598 (36.0) | <0.001 |
| Acute coronary syndrome, no. (%) | 755 (40.8) | 1,056 (43.1) | 0.146 |
| NYHA class ≥3, no. (%) | 456 (34.6) | 385 (26.5) | <0.001 |
| Warfarin, no. (%) | 36 (2.0) | 58 (2.5) | 0.345 |
| Left main disease, no. (%) | 377 (24.4) | 373 (18.5) | <0.001 |
| CTO present, no. (%) | 436 (24.2) | 511 (21.7) | 0.047 |
| No. vessels diseased ±SD | 1.73±0.97 | 1.68±0.91 | 0.046 |

**Table 2:** Procedural variables by access site for rotational atherectomy performed in England and Wales in 2013-2014.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Femoral**  **(n=1,850)** | **Radial**  **(n=2,452)** | **p-value** |
| Off-site surgical cover | 668 (38.2) | 943 (45.2) | <0.001 |
| No. vessels attempted ±SD | 1.44±0.72 | 1.43±0.71 | 0.332 |
| No. lesions attempted ±SD | 1.67±0.85 | 1.64±0.86 | 0.152 |
| CTO attempted, no. (%) | 196 (10.9) | 138 (5.8) | <0.001 |
| No. CTO attempted/case ±SD | 0.12±0.37 | 0.06±0.28 | <0.001 |
| Vessel attempted, no. (%)  Graft  Left main  Left anterior descending  Circumflex  Right coronary | 21 (1.1)  397 (21.5)  964 (52.2)  419 (22.7)  651 (35.2) | 13 (0.5)  378 (15.5)  1,415 (57.9)  497 (20.4)  838 (34.3) | 0.036  <0.001  <0.001  0.063  0.538 |
| Trainee first operator, no. (%) | 1,759 (14.4) | 2,337 (24.6) | <0.001 |
| Intra-vascular imaging use, no. (%) | 253 (15.4)) | 375 (18.4) | 0.017 |
| Atherectomy balloon, no. (%) | 108 (5.8) | 181 (7.4) | 0.049 |
| Penetration catheter, no. (%) | 37 (2.0) | 47 (1.9) | 0.912 |
| Micro-catheter, no. (%) | 243 (13.1) | 339 (13.8) | 0.529 |
| Laser atherectomy, no. (%) | 21 (1.1) | 29 (1.1) | 1.000 |
| Glycoprotein inhibitor, no. (%) | 83 (4.7) | 202 (8.6) | <0.001 |
| No. stents used ±SD | 2.02±1.20 | 2.03±1.17 | 0.400 |

**Table 3:** Significant associations between covariates and femoral access for rotational atherectomy performed in England and Wales in 2013-2014.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Odds ratio** | **[95% CI]** | **p-value** |
| Age per year | 1.020 | [1.005-1.0036] | 0.008 |
| CTO attempt | 1.947 | [1.209-3.314] | 0.006 |
| Previous CABG | 1.681 | [1.124-2.515] | 0.011 |
| Female sex | 1.486 | [1.093-2.021] | 0.012 |
| Left main intervention | 1.588 | [1.081-2.331] | 0.018 |
| Intravascular ultrasound use | 0.554 | [0.378-0.812] | 0.002 |

**Table 4:** Adjusted length of stay (LOS) by access site and presentation in patients undergoing rotational atherectomy in 2013-14

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Femoral**  **(n=1,850)** | **Radial**  **(n=2,452)** | **p-value** |
| **All PCI** | | | |
| Mean LOS ±SD  Median (IQR) | 2.2±4.2  1 (1) | 1.5±3.7  1 (1) | <0.001 |
| Same day discharge, no., (%) | 382 (21.5) | 728 (31.6) | <0.001 |
| 1-2 days no., (%) | 1,067 (60.1) | 1,311 (56.9) | <0.001 |
| 3-7 days no., (%) | 218 (12.3) | 194 (8.4) | <0.001 |
| **Elective PCI** |  |  |  |
| Mean LOS ±SD  Median (IQR) | 1.4±3.5  1 (1) | 0.90±2.6  1 (1) | <0.001 |
| Same day discharge, no., (%) | 283 (26.9) | 568 (43.3) | <0.001 |
| 1-2 days no., (%) | 692 (65.7) | 689 (52.5) | <0.001 |
| 3-7 days no., (%) | 54 (5.1) | 42 (3.2) | 0.021 |
| **ACS-PCI** | | | |
| Mean LOS ±SD  Median (IQR) | 3.3±4.8  1 (3) | 2.3±4.6  1 (1) | <0.001 |
| Same day discharge, no., (%) | 99 (13.7) | 160 (16.1) | 0.172 |
| 1-2 days no., (%) | 375 (51.9) | 622 (62.8) | <0.001 |
| 3-7 days no., (%) | 164 (22.7) | 152 (15.3) | <0.001 |

**Table 5:** Outcomes by access site after rotational atherectomy in England and Wales in 2013-2014

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Femoral**  **(n=1,850)** | **Radial**  **(n=2,452)** | **p-value** |
| **Immediate procedural outcomes** | | | |
| No. successful lesions ±SD | 1.61±0.87 | 1.58±0.86 | 0.149 |
| Coronary perforation, no. (%) | 23 (1.3) | 28 (1.2) | 0.888 |
| Coronary dissection, no. (%) | 44 (2.5) | 57 (2.5) | 1.000 |
| Major side-branch loss, no. (%) | 13 (0.7) | 25 (1.1) | 0.254 |
| Heart block, no. (%) | 9 (0.5) | 3 (0.1) | 0.039 |
| Slow flow, no. (%) | 19 (1.0) | 22 (1.0) | 0.754 |
| All coronary complications, no. (%) | 101 (5.7) | 122 (5.4) | 0.677 |
| Access site complication, no. (%) | 42 (2.4) | 2 (0.1) | <0.001 |
| Access site bleeding, no. (%) | 24 (1.3) | 0 (0) | <0.001 |
| Access site surgery, no. (%) | 13 (0.7) | 0 (0) | <0.001 |
| **Clinical outcomes** | | | |
| Transfusion, no. (%) | 21 (1.2) | 5 (0.2) | <0.001 |
| Peri-procedural MI, no. (%) | 12 (0.7) | 10 (0.4) | 0.288 |
| Acute kidney injury, no. (%) | 6 (0.3) | 3 (0.1) | 0.187 |
| In-hospital major bleed, no. (%) | 44 (2.4) | 10 (0.4) | <0.001 |
| In-hospital death, no. (%) | 41 (2.3) | 33 (1.4) | 0.023 |
| In-hospital MACE, no. (%) | 89 (4.9) | 51 (2.1) | <0.001 |
| Mortality at 30 days, no. (%) | 53 (3.3) | 41 (2.2) | 0.043 |
| Mortality at 1 year, no. (%) | 162 (13.2) | 140 (10.9) | 0.048 |

**Table 6:** Adjusted clinical outcomes of rotational atherectomy by access site

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Odds ratio** | **[95% CI]** | **p-value** |
| Arterial complication | 15.60 | [3.30-76.92] | <0.001 |
| Transfusion | 12.54 | [1.32-35.67] | 0.023 |
| Peri-procedural MI | 2.23 | [0.77-6.45] | 0.140 |
| Acute kidney injury | 1.14 | [0.09-8.19] | 0.908 |
| In-hospital major bleed, no. (%) | 5.95 | [2.11-16.9] | <0.001 |
| In-hospital death, no. (%) | 1.71 | [0.98-2.41] | 0.063 |
| In-hospital MACE, no. (%) | 1.22 | [0.66-2.25] | 0.516 |
| Mortality at 30 days, no. (%) | 1.41 | [0.75-2.75] | 0.284 |
| Mortality at 1 year, no. (%) | 1.31 | [0.93-1.84] | 0.124 |