Supplement Table1. Comparisons of length of stay and recovery times between DPC and PC

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Outcomes** | **PPC** | | | **AT** | | | **IV** | | | **IV with adjusting covariables** | | |
| LOS (day) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) |
| DPC | 298 | 4.4(4.1,4.6) | -0.1 (-0.5,  0.3) | 307 | 4.4(4.2,4.6) | -0.1 (-0.5,  0.3) | 304 | 4.4(4.1,4.7) | -0.1 (-0.5,  0.3) | 278 | 4.4(4.2, 4.7) | -0.1 (-0.6,  0.3) |
| PC | 293 | 4.3(3.9,4.6) | 299 | 4.3(3.9,4.6) | 302 | 4.3(4.0,4.6) | 284 | 4.3(4.1, 4.6) |
| RA (day) |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 265 | 3.9(3.4,4.3) | -0.2 (-0.9,  0.4) | 274 | 3.9(3.4,4.3) | -0.2 (-0.8,  0.4) | 271 | 3.9(3.4,4.3) | -0.2 (-0.9,  0.5) | 251 | 3.8(3.3, 4.3) | -0.2 (-0.8,  0.5) |
| PC | 264 | 3.6(3.2,4.1) | 270 | 3.6(3.2,4.1) | 273 | 3.6(3.2,4.1) | 259 | 3.7(3.2, 4.1) |
| RW (day) |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 259 | 9.1(7.5,10.6) | -1.4 (-3.5,  0.7) | 267 | 9.0(7.5,10.5) | -1.4 (-3.5,  0.7) | 265 | 9.0 (7.5,10.5) | -1.4 (-3.6,  0.8) | 243 | 9.2(7.6, 10.8) | -1.6 (-3.8,  0.7) |
| PC | 259 | 7.6(6.1,9.2) | 265 | 7.6(6.1,9.1) | 267 | 7.6 (6.1,9.1) | 252 | 7.6(6.0, 9.2) |

AT, as treated analysis; CI, confidence interval; DPC, delayed primary wound closure; IV, instrumental variable analysis; ITT, intention to treat analysis; LOS, length of stay; MD, mean difference; PC, primary wound closure; PPC, per-protocol analysis; RA, return to normal activities; RW, return to work

Supplement Table2. Comparisons of postoperative pain, quality of life and cost of treatment between groups.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Outcomes** | **PPC** | | | **AT** | | | **IV** | | | **IV with adjusting covariables** | | |
| Postop pain  (VAS) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) |
| *Day1* |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 295 | 62 (59, 64) | -0.01 (-2.8,  2.8) | 304 | 62 (59, 64) | -0.3 (-3.1, 2.5) | 301 | 61 (59, 64) | 0.2 (-2.7,  3.2) | 275 | 62 (59, 64) | 0.2 (-2.7, 3.0) |
| PC | 290 | 62 (59, 64) | 296 | 61 (59, 63) | 299 | 62 (59, 64) | 281 | 62, (60, 64) |
| *Day3* |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 286 | 29 (27, 31) | 295 | 29 (27, 31) | 292 | 29 (27, 31) | 269 | 29 (27, 31) |
| PC | 286 | 29 (27, 31) | 292 | 29 (27, 31) | 295 | 29 (27, 31) | 277 | 29 (27, 32) |
| QoL scores |  |  |  |  |  |  |  |  |  |  |  |  |
| *Day 3* |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 294 | 0.53 (0.51,  0.55) | 0.02 (-0.01,  0.04) | 300 | 0.53 (0.51,  0.55) | 0.02 (-0.01,  0.04) | 300 | 0.53 (0.50,  0.55) | 0.02 (-0.01,  0.04) | 276 | 0.52, (0.50,  0.55) | 0.02 (-0.01,  0.04) |
| PC | 290 | 0.55 (0.53,  0.57) | 299 | 0.54 (0.52,  0.56) | 299 | 0.54 (0.52,  0.57 | 283 | 0.54 (0.52,  0.56) |
| *Day 30* |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 283 | 0.77 (0.76,  0.79) | 289 | 0.78 (0.76,  0.79) | 289 | 0.78 (0.76,  0.79) | 266 | 0.78 (0.76,  0.79) |
| PC | 278 | 0.79 (0.77,  0.81) | 287 | 0.79 (0.77,  0.81) | 287 | 0.79 (0.78,  0.80) | 273 | 0.79 (0.78,  0.80) |

AT, as treated analysis; CI, confidence interval; DPC, delayed primary wound closure; IV, instrumental variable analysis; ITT, intention to treat analysis; MD, mean difference; PC, primary wound closure; PPC, per-protocol analysis; QoL, quality of life; VAS, visual analog scores

Supplement table3. Comparison of treatment effects on superficial SSIs between groups using different approaches after multiple imputations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Approach | DPC | PC | RR (95%CI) | RD (95%CI) | P value |
| ITT |  |  |  |  |  |
| N | 304 | 303 | 0.72 (0.41, 1.30) | -0.031 (-0.085, 0.023) | 0.264 |
| Rate (%, 95%CI) | 11.1 (7.6, 16.2) | 8 (5.2, 12.4) |
| PP |  |  |  |  |  |
| N | 298 | 294 | 0.79 (0.44, 1.41) | -0.022 (-0.077, 0.032) | 0.418 |
| Rate (%, 95%CI) | 10.5 (7.1, 15.5) | 8.3 (5.4, 12.8) |
| AT |  |  |  |  |  |
| N | 307 | 300 | 0.87 (0.49, 1.54) | -0.013 (-0.067, 0.041) | 0.637 |
| Rate (%, 95%CI) | 10.2 (6.9, 15.0) | 8.9 (5.8, 13.5) |
| IV |  |  |  |  |  |
| N | 307 | 300 | 0.73 (0.33, 1.13) | -0.028 (-0.076, 0.020) | 0.255 |
| Rate (%, 95%CI) | 10.2 (6.6, 13.8) | 7.4 (4.4, 10.4) |
| IV(with adjusted variables) |  |  |  |  |  |
| N | 307 | 300 | 0.73 (0.34, 1.12) | -0.026 ( -0.073,0.021) | 0.170 |
| Rate (%, 95%CI) | 10.1 (6.7, 13.6) | 7.4 (4.5, 10.3) |

AT, as treated analysis; CI, confidence interval; DPC, delayed primary wound closure; IV, instrumental variable analysis; ITT, intention to treat analysis; PC, primary wound closure; PP, per-protocol analysis; RD, risk difference; RR, relative risk; Superficial SSI, superficial surgical site infection

Supplement table4. Comparisons of length of stay and recovery times between DPC and PC after multiple imputations

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Outcomes** | **ITT** | | | **PPC** | | | **AT** | | | **IV** | | | **IV with adjusting covariables** | | |
| LOS (day) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) |
| DPC | 304 | 4.4(4.1,4.6) | -0.1 (-0.5,  0.3) | 298 | 4.4(4.2,4.6) | -0.1 (-0.5,  0.2) | 307 | 4.4(4.2,4.6) | -0.1 (-0.5,  0.3) | 307 | 4.4(4.1,4.7) | -0.1 (-0.5,  0.3) | 307 | 4.4(4.1, 4.6) | -0.1 (-0.5,  0.3) |
| PC | 303 | 4.3(4.0,4.6) | 294 | 4.3(3.9,4.6) | 300 | 4.3(3.9,4.6) | 300 | 4.3(4.0,4.6) | 300 | 4.3(4.0, 4.5) |
| RA (day) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 304 | 7.0 (5.9,8.2) | -0.5 (-2.0,  1.1) | 298 | 7.1(5.9,8.3) | -0.5 (-2.1,  1.1) | 307 | 7.0(5.9,8.1) | -0.4 (-2.0,  1.1) | 307 | 7.1(5.9,8.2) | -0.5 (-2.1,  1.1) | 307 | 7.0(5.9, 8.1) | -0.4 (2.0,  1.2) |
| PC | 303 | 6.6 (5.5,7.6) | 294 | 6.6(5.6,7.7) | 300 | 6.6(5.5,7.7) | 300 | 6.5(5.4,7.7) | 300 | 6.6(5.5, 7.7) |
| RW (day) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 304 | 11.7(9.6,13.8) | -1.7 (-4.1,  0.6) | 298 | 11.8(9.7,13.9) | -1.8 (-4.2,  0.6) | 307 | 11.7(9.7,13.8) | -1.7 (-4.1,  0.6) | 307 | 11.7 (9.9,13.5) | -1.8 (-4.3,  0.6) | 307 | 11.7 (9.9,13.5) | -1.7 (-4.1,  0.7) |
| PC | 303 | 10.0(8.9,11.3) | 294 | 10.0(8.7,11.4) | 300 | 10.0(8.6,11.3) | 300 | 9.9 (8.2,11.7) | 300 | 10.0(8.2, 11.7) |

AT, as treated analysis; CI, confidence interval; DPC, delayed primary wound closure; IV, instrumental variable analysis; ITT, intention to treat analysis; LOS, length of stay; MD, mean difference; PC, primary wound closure; PPC, per-protocol analysis; RA, return to normal activities; RW, return to work

Supplement table5. Comparisons of postoperative pain, quality of life and cost of treatment between groups after multiple imputations

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Outcomes** | **ITT** | | | **PPC** | | | **AT** | | | **IV** | | | **IV with adjusting covariables** | | |
| Postop pain  (VAS) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) | N | (95%CI) | MD (95%CI) |
| *Day1* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 304 | 61 (59, 63) | 0.3 (-2.4,3.1) | 298 | 62 (59, 64) | -0.1 (-2.7,  2.8) | 307 | 62 (59, 64) | -0.2 (-3.0, 2.6) | 307 | 61 (59, 63) | 0.3 (-2.6,  3.2) | 307 | 61 (59, 63) | 0.2 (-2.5, 3.0) |
| PC | 303 | 62 (60, 64) | 294 | 62 (59, 64) | 300 | 61 (59, 63) | 300 | 62 (59, 64) | 300 | 61, (59, 64) |
| *Day3* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 304 | 29 (27, 31) | 298 | 29 (27, 31) | 307 | 29 (27, 31) | 307 | 29 (27, 31) | 307 | 29 (27, 31) |
| PC | 303 | 29 (27, 31) | 294 | 29 (27, 31) | 300 | 29 (27, 31) | 300 | 29 (27, 31) | 300 | 29 (27, 31) |
| QoL scores |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Day 3* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 304 | 0.53 (0.51,  0.55) | 0.02 (-0.01,  0,04) | 298 | 0.53 (0.51,  0.55) | 0.02 (-0.01,  0.04) | 307 | 0.53 (0.51,  0.55) | 0.02 (-0.004,  0.04) | 307 | 0.53 (0.50,  0.55) | 0.02 (-0.01,  0.04) | 307 | 0.52, (0.50,  0.55) | 0.02 (-0.004,  0.04) |
| PC | 303 | 0.54 (0.52,  0.56) | 294 | 0.55 (0.53,  0.57) | 300 | 0.54 (0.52,  0.56) | 300 | 0.54 (0.52,  0.57 | 300 | 0.54 (0.52,  0.56) |
| *Day 30* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DPC | 304 | 0.77 (0.76,  0.79) | 298 | 0.77 (0.75,  0.79) | 307 | 0.77 (0.76,  0.79) | 307 | 0.77 (0.76,  0.79) | 307 | 0.77 (0.76,  0.79) |
| PC | 303 | 0.79 (0.77,  0.81) | 294 | 0.79 (0.77,  0.81) | 300 | 0.79 (0.77,  0.81) | 300 | 0.79 (0.78,  0.80) | 300 | 0.79 (0.78,  0.80) |

AT, as treated analysis; CI, confidence interval; DPC, delayed primary wound closure; IV, instrumental variable analysis; ITT, intention to treat analysis; MD, mean difference; PC, primary wound closure; PPC, per-protocol analysis; QoL, quality of life; VAS, visual analog scores