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| **Supplement S1. Two groups were well balanced after IPTW and PSM** |
| Variable | Total(N=1155) | minimum albumin during the first two postoperative days (g/dL) | P-value | Standardised difference | Standardised difference(PSM) | Standardised difference(IPTW) |
| < 3.0(n=602) | ≥ 3.0(n=553) |
| Demographic characteristics |  |  |  |  |  |  |  |
| Sex (male/female) | 316 (27.4) / 839 (72.6) | 129 (21.4) / 473 (78.6) | 187 (33.8) / 336 (66.2) | <0.001 | 0.631  | 0.023  | 0.012  |
| Age (years) | 78.16 ± 9.99 | 80.77 ± 7.99 | 75.33 ± 11.13 | <0.001 | 0.058  | 0.006  | 0.004  |
| BMI (kg/m2) | 22.73 ± 18.95 | 22.55 ± 24.44 | 22.93 ± 10.02 | 0.740 | 0.001  | 0.003  | 0.001  |
| Period between injury and operation date (days) | 3.73 ± 3.22 | 3.83 ± 3.07 | 3.61 ± 3.37 | 0.259 | 0.021  | 0.033  | 0.011  |
| HTN | 794 (68.7) | 418 (69.4) | 376 (68.0) | 0.597 | 0.067  | 0.016  | 0.098  |
| DM | 409 (35.4) | 205 (34.1) | 204 (36.9) | 0.314 | 0.124  | 0.037  | 0.041  |
| COPD | 58 (5.0) | 36 (6.0) | 22 (4.0) | 0.120 | 0.423  | 0.013  | 0.013  |
| CKD | 150 (13.0) | 84 (14.0) | 66 (11.9) | 0.308 | 0.179  | 0.042  | 0.024  |
| Cardiovascular disease | 187 (16.2) | 99 (16.4) | 88 (15.9) | 0.806 | 0.039  | 0.026  | 0.011  |
| Cerebrovascular disease | 241 (20.9) | 139 (23.1) | 102 (18.4) | 0.052 | 0.283  | 0.013  | 0.063  |
| Medication history |  |  |  |  |  |  |  |
| Antiplatelets | 391 (33.9) | 210 (34.9) | 181 (32.7) | 0.440 | 0.096  | 0.023  | 0.065  |
| Anticoagulants | 72 (6.2) | 43 (7.1) | 29 (5.2) | 0.182 | 0.326  | 0.013  | 0.019  |
| Type of surgery  |  |  |  | 0.544 | 0.073  | 0.011  | 0.041  |
| Osteosynthesis | 708 (61.3) | 364 (60.5) | 344 (62.2) |  |  |  |  |
| Arthroplasty | 447 (38.7) | 238 (39.5) | 209 (37.8) | 　 | 　 | 　 | 　 |
| Laboratory findings |  |  |  |  |  |  |  |
| Preoperative Hb (g/dL) | 11.59 ± 1.60 | 11.22 ± 1.52 | 11.99 ± 1.59 | <0.001 | 0.317  | 0.013  | 0.031  |
| Preoperative Hct (%) | 34.68 ± 4.69 | 33.67 ± 4.48 | 35.78 ± 4.67 | <0.001 | 0.101  | 0.001  | 0.010  |
| Preoperative Plt (×109/L) | 205.17 ± 74.76 | 206.64 ± 79.61 | 203.57 ± 69.15 | 0.483 | 0.001  | 0.001  | 0.001  |
| Preoperative Cr (mg/dL) | 0.96 ± 0.75 | 0.93 ± 0.57 | 1.00 ± 00.91 | 0.150 | 0.112  | 0.014  | 0.015  |
| Preoperative albumin (g/dL) | 3.70 ± 0.43 | 3.54 ± 0.42 | 3.88 ± 0.38 | <0.001 | 2.135  | 0.048  | 0.087  |
| EBL during the first postoperative week (ml) | 895.89 ± 377.16 | 894.13 ± 376.81 | 897.81 ± 377.88 | 0.868 | <0.001 | 0.001  | 0.001  |
| Minimum Hb during the first postoperative week (g/dL) | 8.55 ± 1.20 | 8.18 ± 1.03 | 8.96 ± 1.25 | <0.001 | 0.594  | 0.529  | 0.545  |
| Volume of fluid administered intraoperatively (ml) | 619.14 ± 420.31 | 632.24 ± 425.97 | 604.88 ± 413.98 | 0.269 | <0.001 | <0.001 | <0.001 |
| Anaesthesia time (minutes) | 121.03 ± 34.04 | 122.44 ± 36.96 | 119.48 ± 30.51 | 0.137 | 0.003  | <0.001 | 0.002  |
| Length of stay (days) | 15.85 ± 11.12 | 16.31 ± 9.41 | 15.35 ± 12.72 | 0.146 | 0.008  | 0.008  | 0.002  |
| Postoperative transfusion rate (%) | 76 (6.6) | 55 (9.1) | 21 (3.8) | <0.001 | 0.892  | 0.489  | 0.647  |

Note: data are presented as mean ± standard deviation or number (%)

Abbreviations: IPTW, inverse probability of treatment weighting; PSM, propensity score matching; BMI, body mass index; HTN, hypertension; DM, diabetes mellitus; COPD, chronic obstructive pulmonary disease; CKD, chronic kidney disease; Hb, haemoglobin; Hct, haematocrit; Plt, platelet count; Cr, creatinine; EBL, estimated blood loss