Supplementary Table 2. Multivariable Firth's penalized logistic regression analysis for the occurrence of POD

Independent variables	Univariate		Multivariable	
	OR (95% CI)	P	OR (95% CI)	P
SAA (preoperative)	1.008 (1.006–1.010)	< 0.001	1.004 (1.002–1.006)	< 0.001
Age (yr)	1.130 (1.101–1.161)	< 0.001	1.081 (1.045–1.119)	< 0.001
Sex*				
M	1 (reference)			
F	0.990 (0.659–1.489)	0.963		
Height (cm)	0.974 (0.953–0.997)	0.024	1.003 (0.985–1.022)	0.740
BMI (kg/m^2)	0.921 (0.880–0.964)	< 0.001	0.993 (0.938–1.050)	0.793
ASA PS		< 0.001		0.173
I	1 (reference)		1 (reference)	
II	2.327 (0.438–12.359)	0.322	0.746 (0.129–4.320)	0.743
III	11.674 (2.241–60.800)	0.004	1.108 (0.182–6.742)	0.911
IV	13.114 (2.116–81.271)	0.006	0.362 (0.043–3.066)	0.351
Underlying disease				

Hypertension	1.934 (1.244–3.005)	0.003	1.175 (0.671–2.057)	0.572
Diabetes mellitus	2.121 (1.405–3.201)	< 0.001	1.422 (0.833–2.427)	0.197
Chronic kidney disease	3.125 (1.937–5.041)	< 0.001	1.073 (0.580–1.987)	0.822
Chronic liver disease	2.021 (0.931–4.391)	0.075	0.946 (0.332–2.696)	0.918
Chronic pulmonary disease	3.703 (2.258–6.071)	< 0.001	1.764 (0.948–3.280)	0.073
History of stroke*	1.713 (0.732–4.010)	0.215		
Hemoglobin (g/dL, preoperative)	0.730 (0.658–0.810)	< 0.001	1.027 (1.000–1.055)	0.047
Albumin (g/dL, preoperative)	0.215 (0.151–0.307)	< 0.001	0.490 (0.287–0.836)	0.009
Type of surgery		< 0.001		0.225
IM nailing	1 (reference)		1 (reference)	
CRIF	0.349 (0.154–0.787)	0.011	0.392 (0.148–1.040)	0.060
BHA	1.059 (0.625–1.796)	0.830	1.150 (0.618–2.138)	0.659
THA	0.106 (0.061–0.183)	< 0.001	0.695 (0.306–1.577)	0.384
I&D	0.462 (0.136–1.578)	0.218	0.358 (0.063–2.037)	0.247
Others	0.119 (0.007–2.127)	0.148	1.954 (0.089–42.928)	0.671
Type of anesthesia				

Neuraxial	1 (reference)		1 (reference)	
General	2.328 (1.479–3.665)	< 0.001	1.651 (0.913–2.986)	0.097
Anesthesia time	0.992 (0.987–0.997)	0.004	1.000 (0.994–1.006)	0.956
Estimated blood loss	0.999 (0.998–1.000)	0.020	1.000 (1.000–1.001)	0.994
RBCs (units, during surgery)	1.192 (0.991–1.433)	0.062	0.982 (0.709–1.360)	0.912
ICU admittance	3.500 (1.916–6.393)	< 0.001	1.360 (0.587–3.154)	0.473

OR: odds ratio, CI: confidence interval, POD: postoperative delirium, SAA: serum amyloid A, BMI: body mass index, ASA PS: American Society of Anesthesiologists physical status, IM: intramedullary, CRIF: closed reduction and internal fixation, BHA: bipolar hemiarthroplasty, THA: total hip arthroplasty, I&D: incision and drainage, RBC: red blood cell, ICU: intensive care unit. *P > 0.2 in univariate analysis was excluded from the multivariable regression model.