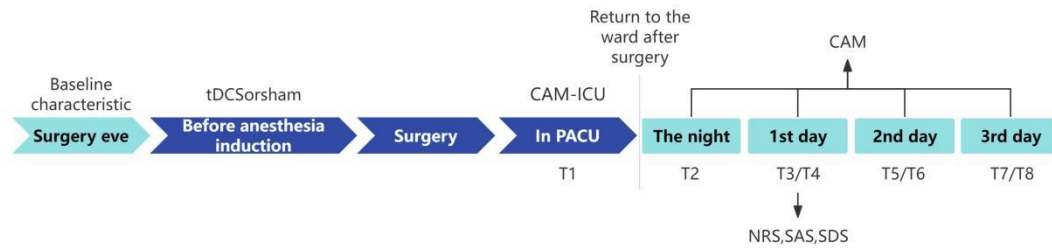
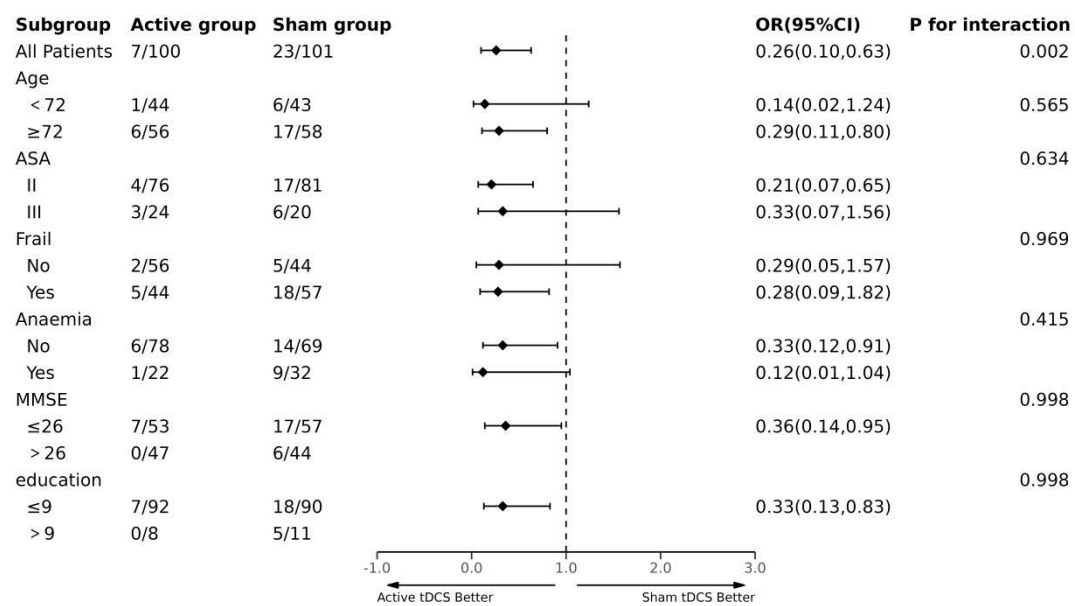


Supplementary Figure 1 The apparatus used in this test. A: The mainframe of the apparatus and electrodes; B: Stretchy hat used to fix the electrodes.



Supplementary Figure 2 The timeline of the trial. tDCS: Transcranial direct current stimulation; CAM-ICU: Confusion assessment method of intensive care unit; PACU: Postanesthesia care unit; CAM: Confusion assessment method; NRS: Numeric rating scale; SAS: Self-rating anxiety scale; SDS: Self-rating depression scale; T1: When the patients were prepared to be transferred back to the ward; T2: The evening of the day of surgery; T3: The morning of the first postoperative day; T4: The afternoon of the first postoperative day; T5: The morning of the second postoperative day; T6: The afternoon of the second postoperative day; T7: The morning of the third postoperative day; T8: The afternoon of the third postoperative day.



Supplementary Figure 3 Forest plot of the subgroup analysis.

Supplementary Table 1 Intraoperative data by treatment group

Characteristics	Sham-tDCS (<i>n</i> = 101)	Active-tDCS (<i>n</i> = 100)	<i>P</i> value
Remifentanyl,median(IQR), mg	2.50 (2.00-3.3)	2.50 (1.90-3.08)	0.097
Duration of surgery, median (IQR), minute	210 (165-260)	200 (180-230)	0.526
Duration of anesthesia, median (IQR), Characteristics	240 (200-280)	225 (210-260)	0.265
Infusion quantity, median (IQR), ml	2150 (1850-2750)	2000 (1750-2500)	0.300
Estimated blood loss,median (IQR), ml	100 (50-120)	100 (50-150)	0.119
Ephedrine,median(IQR), mg	3 (0-9)	3 (0-11.5)	0.930
Phenylephrine,median(IQR), µg	280 (120-800)	400 (50-950)	0.861

Supplementary Table 2 Mediating model examination by bootstrap

Model	Mediating effect	LL 95%CI	UL 95%CI	<i>P</i> value
Anxiety	-0.01	-0.03	0.01	0.35
Depression	0.01	-0.01	0.03	0.23

CI: Confidence interval.

Supplementary Table 3 Adverse events in the trial

Characteristics	Sham-tDCS (<i>n</i> = 101)	Active-tDCS (<i>n</i> = 100)	<i>P</i> value
Fever	17 (16.8)	16 (16.0)	0.874
Nausea and vomiting	9 (8.9)	7 (7.0)	0.617
pneumothorax	1 (1.0)	0	1.000
Oliguria	1 (1.0)	0	1.000
Hypoxia	1 (1.0)	1 (1.0)	1.000
Skin erythema at the stimulation site	3 (3.0)	8 (8.0)	0.117
Skin pain at the stimulation site	3 (3.0)	15 (15.0)	0.003