Title: Impact of COVID-19 protocols on perioperative complications after posterior fusion surgery for acute spinal cord injury: A propensity score-matched analysis

Abstract (1985/2000 characters including spaces)

Background: A measure taken in our hospital to reduce COVID-19 risk is the "8-day rule" for emergency in-patients with acute spinal cord injury (SCI). This involves performing treatment and rehabilitation in the isolation room for 8 days after hospitalization.

Research question: This study clarified the influence of COVID-19 protocols on the perioperative complications in SCI patients.

Design: Single-centre retrospective study.

Methods*:* We examined 271 SCI patients who underwent posterior fusion surgery during 2017–2021. Baseline and surgical data were assessed. After preliminary analysis, we established a 1:1 matching model using propensity scores to adjust for age, sex, and risk factors for perioperative complications reported previously. Rates of perioperative complications, including urinary tract infection, cardiopulmonary disorders, delirium, and deep venous thrombosis, were compared between patients with the "8-day rule" (COVID-19 group) and those without (control group).

Results*:* Preliminary analysis of 271 unmatched patients (79, COVID-19 group; 192, control group) revealed significant differences in ASIA Impairment Scale scores at admission (P=0.031), hypertension (P=0.023), haemoglobin (P=0.031), D-dimer (P=0.040), and estimated blood loss (P=0.023) between the groups. There were significant differences in urinary tract infection (54% vs. 37%; P=0.008), cardiopulmonary dysfunction (25% vs. 15%; P=0.047), and delirium (25% vs. 10%; P=0.001) between the COVID-19 and control groups. Using 1:1 propensity score-matched analysis, 70 patient pairs in the COVID-19 and control groups were selected. There were significant differences in delirium (27% vs. 7%; P=0.002) and deep venous thrombosis (47% vs. 30%; P=0.046) between the groups.

Discussion*:* The "8-day rule" increased perioperative complications after SCI. The epidemic prevention management negatively impacted the timing of rehabilitation intervention and perioperative complication rates after SCI.