

Background:

A measure taken in our hospital to reduce COVID-19 risk by avoiding contact between in-patients 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: The epidemic prevention management may have had a negative impact on the perioperative complications after SCI surgery. Therefore, 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 (mean age 64.0 years; 217 men; follow-up period: at least 1 year). 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 American Spinal Injury Association 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 no significant differences at baseline and in the surgical data of the groups. The C-statistic for the goodness of fit was 0.750 in the propensity score model. In the score-matched analysis, 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.