IMPORTANCE: Recent data suggest that glucocorticoids may reduce adverse outcomes in patients with severe coronavirus disease 2019 (COVID-19). However, the dose and time of administration are still undefined.

OBJECTIVE: To analyze the effects of a short course of methyl-prednisolone pulses (MP) during the second week of disease (week-2) on the clinical course of patients with severe COVID-19 pneumonia.

DESIGN, SETTING AND PARTICIPANTS: Observational study using routine care of patients with COVID-19 pneumonia admitted between 1st March and 30th April 2020 to the services of Infectious Diseases and Internal Medicine of Hospital Universitario Cruces.

EXPOSURES: Treatment with week-2-MP (125-250 mg/d for 3 consecutive days with no subsequent tapering) in addition to standard of care.

MAIN OUTCOMES AND MEASURES: Time to death and time to death or endotracheal intubation. Additional clinical and therapeutic variables were used to fit multivariate Cox proportional risk models.

RESULTS: Two hundred and forty-two patients with confirmed COVID-19 pneumonia and elevated inflammatory markers at admission were included in the study. Sixty-one patients (25%) received week-2-MP. Twenty-two patients (9%) died during the study period. Thirty-one patients (12.8%) suffered death or intubation. The adjusted HR for death was 0.35 (95%CI 0.11-1.06, p= 0.064) for patients in the week-2-MP group. The adjusted HR for death or intubation week-2-MP was 0.33 (95%CI 0.13-0.84, p=0.020) for patients in the week-2-MP group. These differences were seen in the subcohort of patients with a SaO2/FiO2 at day 7 lower than the median of the whole population: HR 0.31, 95% CI 0.08-1.12, p=0.073 and HR 0.34, 95%CI 0.12-0.94, p=0.038,

respectively, but not in patients with higher SaO2/FiO2. Other predictors of the final outcomes were arterial hypertension, SaO2/FiO2, high-risk CURB65 scores and the use of non-pulse glucocorticoids. Non-pulse glucocorticoids were a predictor of infections (OR 4.72, 95%CI 1.90-11.80, p<0.001), while week-2-MP were not (OR 1.04, 95%CI 0.40-2.70, p=0.938).
CONCLUSIONS AND RELEVANCE: Week-2-MP are effective in improving the prognosis of patients with COVID-19 pneumonia with features of inflammatory activity and respiratory deterioration entering the second week of disease. The recognition of this high-risk population should prompt early use of MP at this point.