

Category : **Respiratory: ARDS**

A213 - Early dexamethasone treatment does not alter the development of pulmonary fibroproliferation in critically ill covid-19 patients

EJ Kooistra¹; AE Van Herwaarden²; J Gerretsen³; RL Smeets²; S Van der Velde³; MJW Van den Berg³; JG Van der Hoeven³; M Kox³; P Pickkers³

¹Radboudumc, Intensive Care, Nijmegen, Netherlands, ²Radboudumc, Department of Laboratory Medicine, Nijmegen, Netherlands, ³Radboudumc, Department of Intensive Care Medicine, Nijmegen, Netherlands

Introduction:

A subgroup of critically ill COVID-19 patients develops pulmonary fibroproliferation (PF), which is associated with worse outcomes. We explored the kinetics of fibrosis markers and ventilatory parameters prior to and following use of steroids to treat suspected PF. Furthermore, we investigated the effects of early dexamethasone (DEXA) treatment, the current standard-of-care for COVID-19, on the incidence and time to development of PF and clinical outcomes.

Methods:

We included 191 critically ill COVID-19 patients spanning two treatment cohorts: no DEXA treatment (*pre-DEXA cohort*, n=67) and dexamethasone treatment as standard-of-care (*DEXA cohort*, n=124). Kinetics of circulating fibrosis markers and ventilatory parameters were analyzed in suspected PF patients prior to and following initiation of steroid therapy as well as in patients in whom PF was not suspected. Furthermore, associations between PF and clinical outcomes were explored.

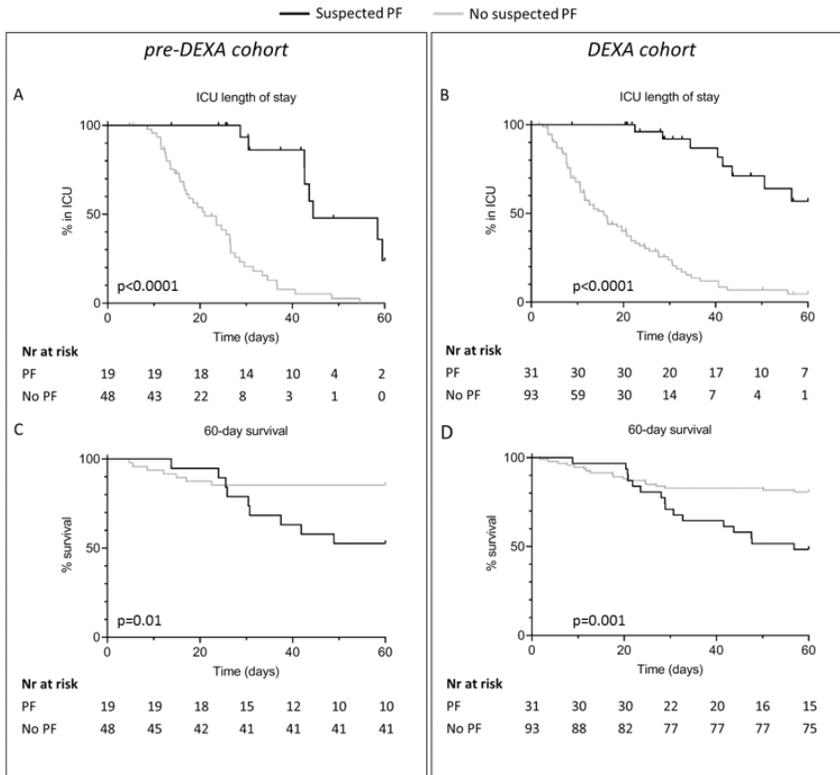
Results:

Patients with suspected PF exhibited higher circulating fibrosis markers, lower lung compliance and PaO₂/FiO₂ ratios, and increased dead space ventilation. Incidence of suspected PF was 28% in the pre-DEXA cohort and 25% in the DEXA cohort (p=0.61), and time to development of suspected PF was also similar between cohorts (16 [12-21] vs. 19 [14-23] days from ICU admission, p=0.11). Time on ventilator, LOS in ICU and mortality were significantly higher in suspected PF patients than in no suspected PF patients, with no differences between the cohorts (Figure).

Conclusion:

Increased circulating fibrosis markers reflect development of PF in critically ill COVID-19 patients, which is associated with prolonged ICU length of stay and high mortality rates. Introduction of dexamethasone as standard-of-care is not associated with altered incidence of PF or improved clinical outcomes in patients with PF.

Image :



Clinical outcomes. Kaplan-Meier curves of length of stay (LOS) in the intensive care unit (ICU) in (a) the pre-DEXA cohort and (b) the DEXA cohort, and 60-day hospital mortality in (c) the pre-DEXA cohort and (d) the DEXA cohort. P-values were calculated using log-rank tests. For analysis of 60-day hospital mortality, patients who were discharged alive from the hospital or were still in the ICU or hospital on day 60 were censored at day 60.

Numbers at risk are shown below graphs.