Data management

Epidemiological, clinical, and biological data were selected from electronic medical records including: age, gender, comorbidities, mode of respiratory support and other treatments. The clinical data allowed characterization of the severity of the respiratory impairment (17) and the hemodynamic (catecholamine, input/output assessment, daily diuresis) factors that could affect the biological interpretation at the time of sampling or during all of the ICU stay. Biological data that were collected focused on inflammation (CRP, PCT, blood cytokine profile), renal function (blood ionogram, creatininemia, urinary ionogram, urinary cytobacteriology, urinary protein profile), and organ failure. Clinical outcomes such as mechanical ventilation duration, ICU length of stay, new renal replacement therapy, and the occurrence of death were also collected.

Berlin criteria

Timing: within 1 week of a known clinical insult or new or worsening respiratory symptoms

Chest imaging: bilateral opacities—not fully explained by effusions, lobar/lung collapse, or nodules

Origin of edema: respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (eg, echocardiography) to exclude hydrostatic edema if no risk factor present

Oxygenation:

- Mild: 200 mmHg < PaO2/FIO2 < 300 mmHg with PEEP or CPAP >=5 cm H2Oc
- Moderate: 100 mmHg < PaO2/FIO2 < 200 mmHg with PEEP >=5 cm H2O
- Severe: PaO2/FIO2 < 100 mmHg with PEEP >=5 cm H2O

Ethics and approval

In accordance with the French law on biomedical research, this observational retrospective study obtained the approval of an Institutional Review Board ("Comité d'Éthique de la Recherche en Anesthésie-Réanimation" (CERAR, President Prof. JE Bazin, 05/30/20)) under the reference IRB 00010254 - 2020 - 106) (20). Patients were all informed via the websites of the institution (Assistance Publique - Hôpitaux de Paris (AP-HP) and of Hôpital Saint Antoine) of the possible use of their data in researches aimed towards improving the quality of care, as well as their right and terms of objection. This information was also included for each patient in the hospital's welcome booklet, which was given during administrative registration, and presented at the end of the hospitalization reports. In order to guarantee the security of personal data, the investigators integrated the data anonymously into a secure database in accordance with the French Commission Nationale de l'Informatique et des Libertés (CNIL) reference methodology (MR) - 004 and registered it under the number 20200803123416.