Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

CHEST

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High Incidence of Nosocomial Infections in COVID-19 Patients

Is SARS-CoV-2 the Culprit?

To the Editor:

Grasselli et al[1] reported in *CHEST* (August 2021) the results of a retrospective multicenter study aiming to determine the incidence and microbiology of hospital-acquired infections (HAI) in patients with COVID-19 who were hospitalized in the ICU. The incidence of HAI (46%) and ventilator-associated pneumonia (VAP) (50%) appears to be very high. However, as acknowledged by the authors, no comparison was performed with a control group, such as patients with influenza pneumonia or ARDS. Could the authors at least provide the incidence of HAI and VAP in the participating ICU before the pandemic? This would be helpful to estimate the potential effect of SARS-CoV-2 infection on the rate of these infections. Similarly, the incidence of multidrug-resistant bacteria is quite high. What was the incidence of these bacteria in the participating ICUs before the pandemic?

Our group recently reported the results of a large multicenter European study aiming to determine the impact of SARS-CoV-2 infection on the incidence of ventilator-associated lower respiratory tract infections (VALRTI) (ie, VAP and ventilator-associated tracheobronchitis).[2] We included 1,576 patients (568 patients in the SARS-CoV-2 group, 482 patients in the influenza group, and 526 patients in no viral infection groups). VALRTI incidence was significantly higher in patients with SARS-CoV-2 (287 patients; 50.5%) compared with patients with influenza (146 patients; 30.3%; adjusted sub hazard ratio, 1.60 [95% CI, 1.26 to 2.04]) or patients with no viral infection (133 patients; 25.3%; adjusted sub hazard , 1.7 [95% CI, 1.2 to 2.39]). Although the incidence of VALRTI was in line with that reported by the authors,[1] the incidence of multidrug-resistant bacteria was lower in SARS-CoV-2 pneumonia, compared with the influenza and no viral infection groups (23%, 38%, and 34%, respectively).

No clear explanation is provided by Grasselli et al[1] for the high incidence of HAI and VAP in study patients. Is it related only to the long duration of ICU stay and mechanical ventilation in patients with COVID-19? Another potential explanation is the high incidence of ARDS in patients with COVID-19, because ARDS is a well-known risk factor for VAP.[3] Specific pulmonary lesions that result from SARS-CoV-2 infection and alteration of pulmonary and digestive microbiota might also participate in the pathogenesis of VAP and HAI in these patients.[4,5] Further studies are needed to better explain the pathophysiologic condition of ICU-acquired infections in patients with COVID-19.

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