Extracorporeal membrane oxygenation for acute respiratory distress syndrome due to *Pneumocystis* pneumonia

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Extracorporeal membrane oxygenation (ECMO) may be justified in immunocompromised patients with *Pneumocystis*-associated acute respiratory distress syndrome, and an awake ECMO strategy might be feasible in selected patients.


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**To the Editor:**

*Pneumocystis jirovecii* pneumonia (PcP) occurs exclusively in immunocompromised patients. About 50% of PcP is HIV related, the other half is associated with immunosuppression for other reasons [1]. If PcP progresses to an acute respiratory distress syndrome (ARDS) requiring intensive care and invasive mechanical ventilation, the prognosis is generally poor [1] and mortality is about 80% if additional veno-venous extracorporeal membrane oxygenation (VV-ECMO) support is necessary [1]. Despite lack of clear evidence [2], VV-ECMO has become an integral part in the rescue therapy of severe ARDS. Moreover, some centres start VV-ECMO at early time-points in order to rigorously follow (ultra-) protective ventilation strategies [3]. So far, VV-ECMO in patients with PcP-associated ARDS has been reported only on the basis of singular case reports, including one case of awake ECMO [4]. Using ECMO in patients who are awake and spontaneously breathing might avoid complications associated with sedation and invasive mechanical ventilation. Our group was the first to describe this awake ECMO approach in a bridge-to-transplant setting [5, 6] as well as in a small number of ARDS patients [7, 8]. However, evidence on the safety and efficacy of awake VV-ECMO strategies in this population is lacking [7]. PcP classically leads to an isolated single organ failure without accompanying systemic complications such as septic shock with haemodynamic instability or acute kidney injury (AKI). At the same time, these patients often require prolonged invasive mechanical ventilation with a high risk of complications including ventilator-associated pneumonia and pneumothorax. Hence, patients with PcP and severe hypoxaemia may be candidates for an awake ECMO strategy as a bridge to recovery.

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