**Incidence and Outcomes of Bloodstream Infections in COVID-19 Patients Receiving ECMO Support: A Retrospective Study from Qatar**

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**Introduction:** The COVID-19 pandemic has significantly increased the utilization of Extracorporeal Membrane Oxygenation (ECMO) for patients experiencing severe respiratory failure. Bloodstream infections (BSIs) are a major complication in this population, posing additional challenges to patient management and outcomes.

**Objectives:** To investigate the incidence, microbiological profile, and outcomes of BSIs in COVID-19 patients receiving ECMO support in Qatar.

**Methods:** A retrospective analysis was conducted on COVID-19 patients who received ECMO support in Intensive Care Units (ICU) across multiple hospitals in Qatar from March 2020 to December 2021. Patient demographics, clinical characteristics, ECMO parameters, microbiological data, and outcomes were collected and analyzed.

**Results:** Among the 54 COVID-19 patients on ECMO, 7 (13%) developed BSIs. Gram-negative bacteria were the predominant pathogens, with *Klebsiella pneumoniae* and *Escherichia Coli* bacteria being the most common. Gram-positive bacteria, primarily *Staphylococcus aureus*, and fungi, such as *Candida species*, were also identified. There were no significant differences in demographic and clinical characteristics, including age (P=0.99), gender (P=0.58), body mass index (BMI) (P=0.40), Acute Physiology and Chronic Health Evaluation (APACHE) II score (P=0.29), and presence of tracheostomy (P=0.99) between groups. Similarly, there were no significant differences in hospital length of stay (LOS) (P=0.41), ICU LOS (P=0.58), ECMO LOS (P=0.96), and duration of mechanical ventilation (P=0.71) between the two groups. Moreover, there were no significant differences in ECMO outcome (P=0.96), ICU discharge (P=0.45), and hospital discharge (P=0.22) between ECMO patients with and without BSIs in terms of survival status.

**Conclusion:** This study highlights the high incidence of BSIs in COVID-19 patients receiving ECMO support in Qatar, underscoring the need for stringent infection control measures and targeted antimicrobial therapies. Enhanced surveillance and tailored strategies are essential to mitigate the risk of BSIs in this vulnerable patient population.

**Keywords:** Bloodstream Infections; Extracorporeal Membrane Oxygenation; COVID-19.