

ECMO, Mortality and ARDS



An in-depth analysis was conducted in Germany to evaluate whether mortality in Germany in Extracorporeal life support (ECLS) therapy differed from previously reported literature.

Extracorporeal life support (ECLS) is a critical component of intensive care therapy. There are various conditions that require the use of ECLS. The term ECLS encompasses different terms depending on the system and the type of cannulation that is used. There pump-operated extracorporeal membrane oxygenation (ECMO) and pumpless extracorporeal-carbon dioxide removal (ECCO2R). ECMO can be further classified into venoarterial-ECMO (VA-ECMO) and venovenous-ECMO (VV-ECMO). The choice of therapy is dependent on the indication. For example, patients undergoing lung replacement due to respiratory failure are treated with VV-ECMO, but patients with combined cardiac and pulmonary failure require venoarterial (VA) or venovenovenous (VVA).

The primary indication for VV-ECMO is ARDS. In this study, the researchers hypothesise that mortality in Germany in ECMO therapy in ARDS does not differ from previously reported literature. Data from the German Federal Statistical Office on ECLS treatment and results regarding mortality, treatment duration and age distribution in ARDS patients were evaluated.

Results of the study, which evaluated 45657 patients treated with ECLS, show that hospital mortality remained higher than predicted compared to the values reported in literature. VV-ECMO cases increased by 236% from 2007 to 2018. VV-ECMO therapy in ARDS patients increased by 1143% from 2007 to 2018. The percentage of patients treated with VV-ECMO who had ARDS increased from 16.6% in 2007 to 61.5% in 2018. Hospital mortality was the highest in 2008 (70.1% in all VV-ECMO patients and 70.4% in VV-ECMO patients with ARDS). Hospital mortality decreased to 53.9% in VV-ECMO patients and to 54.4% in VV-ECMO patients with ARDS in 2018.

The number of VA-ECMO cases increased by 4639% from 2007 to 2018. The highest mortality rate was observed in 2007 in both VA-ECMO patients and VA-ECMO patients with ARDS.

ARDS was the main indication in 33% of the patients in the past, but in 2018, this had increased to 60%. More patients over the age of 65 are undergoing ECLS. In 2018, mortality decreased in VV-ECMO patients and VV-ECMO patients with ARDS to 53.9% and 54.4%, respectively.

These findings clearly show that ARDS had a high mortality rate despite ECLS therapy. Reported mortality in literature was lower than in this current study. These findings suggest that the mortality for ECLS therapy in Germany needs to improve. This could either be achieved by instituting a minimum number, a mandatory implementation of guidelines or the containment of monetary incentives.

Source: [Critical Care](#)

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