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Extracorporeal membrane oxygenation meta-analysis of time-to-event data in cardiopulmonary disease in adults

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Protocol Information

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Summary: Purpose:Time-to-event data of hazard ratios were used to generate a forest plot of all-cause mortality on extracorporeal membrane oxygenation (ECMO) in both overall and individual indications of cardiopulmonary disease in adults.Materials and Methods:A systemic search was conducted in PubMed from 1975 to 2018. Among 4,121 articles, a total of 34 clinical reports comprising 20,610patients (1,631 of the patients who underwent ECMO and 18,979 of the patients who did not undergo ECMO) met the inclusion criteria.Results:The pooled hazard ratio of 1.2828 (95% confidence interval: 0.9649, 1.7054) suggests that the ECMO group was not significantly associated with a reduction in mortality compared with the no-ECMO group in the overall ECMO indications. The results of subgroup analyses showed a significantly improved patient survival in respiratory failure with 0.6308 (0.5037, 0.7900), and a worse patient survival after lung transplantation with 2.0600 (1.6987, 2.4981), in bridging to heart transplantation with 1.4212 (1.0309, 1.9592), and after heart transplantation with 5.6365 (1.7569, 18.0827).Conclusions:Most of the included studies are retrospective, which diminishes the significance of the findings due to a higher risk of selection bias, which was exemplified by the allocation of ECMO based on the patients' severity condition.

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