

Category : **Respiratory: VV-ECMO**

A150 - Impact of obesity on outcomes in patients receiving extracorporeal membrane oxygenation: a systematic review and meta-analysis

WWS Ng¹; KC Leung²; RWH Hui³; P Yeung Ng⁴; CW Ngai⁵; SWC Sin⁴

¹Adult Intensive Care Unit, Queen Mary Hospital, Adult Intensive Care Unit, Hong Kong, Hong Kong, SAR China, ²West London Renal and Transplantation Center, Hammersmith Hospital, Imperial College Healthcare NHS Trust, West London Renal and Transplantation Center, Hammersmith Hospital, Imperial College Healthcare NHS Trust, London, United Kingdom, ³Department of Medicine, School of Clinical Medicine, The University of Hong Kong, Department of Medicine, School of Clinical Medicine, The University of Hong Kong, Hong Kong, Hong Kong, SAR China, ⁴Critical Care Medicine Unit, The University of Hong Kong, Critical Care Medicine Unit, The University of Hong Kong, Hong Kong, Hong Kong, SAR China, ⁵Adult Intensive Care Unit, Queen Mary Hospital, Adult Intensive Care Unit, Queen Mary Hospital, Hong Kong, Hong Kong, SAR China

Introduction:

Given the growing obesity pandemic, the impact of obesity on ECMO outcomes would be increasingly relevant to our daily practise. We hence performed a meta-analysis on this topic, integrating the latest evidence [1,2].

Methods:

Systematic literature search was conducted from inception until September 2023 on MEDLINE, Embase and the Cochrane Library using the terms “ECMO”, “obesity”, and their related terms. Our primary outcome was to assess the impact of obesity on in-hospital or 30-day mortality. The secondary outcomes were to evaluate the impact of obesity on major vascular complications (bleeding or ischemia), ECMO duration and hospital length-of-stay. A random-effects model (DerSimonian and Laird) was adopted for meta-analysis. Study quality was assessed using the Newcastle-Ottawa Scale.

Results:

This meta-analysis included 24 studies from 2013–2023, including a total of 49,102 ECMO patients (Mean age 51.14 ± 11.57 years). Obese patients, when compared with non-obese patients, had a significantly lower risk of in-hospital or 30-day mortality (Risk difference -4%, 95%CI -7% – 0%, I²=68%, p=0.03). Regarding secondary outcomes, obesity had no significant association with major vascular complications (Risk difference 1%, 95%CI -2% – 4%, I²=29%, p=0.38). Obesity was associated with significantly shorter hospital length-of-stay (Mean difference -2.39 days, 95% CI -4.62 – -0.15, I²=77%, p=0.04), but had no impact on ECMO duration (Mean difference 0.34 days, 95%CI -0.06 – 0.74, I²=44%, p=0.10).

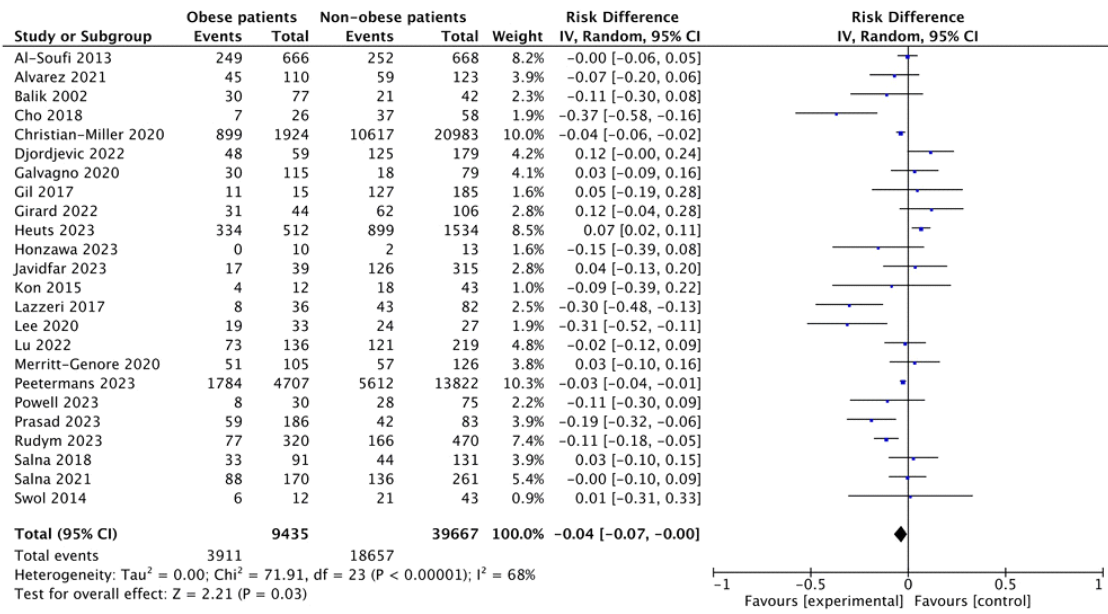
Conclusion:

In summary, our meta-analysis showed that obesity is not a negative prognostic factor in ECMO. ECMO, as a life-saving treatment option in critically ill patients, should not be withheld from obese patients who are otherwise suitable candidates.

References:

1. Rudym D et al. Am J Respir Crit Care Med. 2023 Sep 15;208(6):685–94.
2. Peetermans M et al. Intensive Care Med [Internet]. 2023 Jan 1 [cited 2023 Oct 13];49(1):37. Available from: /pmc/articles/PMC9684759/

Image :



Forest plot of meta-analysis in mortality of obese and non-obese patients on ECMO support.