Response to Letter to Editor Entitled "Relationship Between Body Mass Index and Survival to Discharge Following Venoarterial Extracorporeal Membrane Oxygenation"

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Abstract

This is a response to the Letter to Editor received regarding the article "The effect of patient obesity on extracorporeal membrane oxygenator outcomes and ventilator dependency." We aim to address the authors' comments regarding the relationship between BMI and survival after venoarterial extracorporeal membrane oxygenation (VA-ECMO).

Dear Mr Nordan and Dr Kawabor,

Thank you for your inquiry regarding our manuscript[1]. We certainly agree that VV and VA patients represent a different type of patients and associated comorbities who may require ECMO for cardiac or respiratory support.

To address this concern, we did examine the data in multiple ways. Analysis was completed for the large cohort (the published manuscript) but was also completed comparing the the VA (106 patients) and VV (50 patients) groups on clinical factors. There was no statistically significant difference in the BMI between patients who had VA support versus patients who had VV support (p=0.55). There was likewise no statistically significant difference between our VA or VV groups with respect to raw BMI or class of obesity on duration of support, days of ventilation after ECMO, reintubation, ability to wean, discharge status, hospital days, hospital days after ECMO, ICU days, and 30 day survival status.

We do appreciate these data contrast with the other published studies noted in your letter; however other studies have found similar data in comparing obesity to outcomes for both VA and VV ECMO. For example, in a study examining 222 patients who were transported on ECMO, transport and survival outcomes were similar for obese or non-obese patients (this included VA and VV ECMO patients)[2]. Childhood obesity for VA ECMO has also been examined, without association for obesity and in-hospital mortality rates[3].

Another study included 38 patients supported with VA ECMO with a mean BMI 43.2 kg/m$^{2\cdot}$ Of note these patients were older and had a higher prevalence of preoperative renal dysfunction compared to non-obese patents[4]. No differences in weaning, hospital survival or long-term survival were noted between groups, despite these differences.

Our manuscript likewise details a medium-sized cohort of both VA and VV ECMO patients and is meant to add to the body of literature available, not to provide guidelines. Thank you for your insightful points and reflections.

References:

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4. Keyser A, Phillip A, Zeman F et al. Percutaneous cannulation for ECLS in Severely and Morbidly Obese Patients. J Int Car Med. 2018 Sept. doi: 10.1177/0885066618801547.