Letter To The Editor: Long-Term Renal Function After Venoarterial Extracorporeal Membrane Oxygenation.

Sapna Goindani[1], Muhammad Abdullah Khan[2], and Satesh Kumar[3]

[1]Peoples University of Medical and Health Sciences for Women Faculty of Basic and Allied Sciences
[2]Ziauddin University
[3]Shaheed Mohtarma Benazir Bhutto Medical College

April 4, 2022

Title Page:

Title: Letter To The Editor: Long-Term Renal Function After Venoarterial Extracorporeal Membrane Oxygenation.

Article Type: Letter To The Editor

Correspondence: 1. Sapna Goindani

Contact No: +971 54 344 9435. Email: Sapnagoindani123@Gmail.Com

Institute: Peoples University Of Medical And Health Sciences For Women (Pumhsw)

Address: Flat No 9, Building No 10 Bastakia Building, Al Hamriya Bur Dubai, Dubai

Orcid: 0000-0003-4906-8463

Co-Authors: 2. Muhammad Abdullah Khan

Contact No: +923032992689. Email: Abd2992689@Gmail.Com

Institute: Ziauddin University Karachi

Address: House No R 133 Block 11 Gulshan E Iqbal Karachi

Orcid: 0000-0002-0653-5060

Co-Authors: 3. Satesh Kumar

Contact No: +92-3325252902. Email: Kewlanisatish@Gmail.Com

Institute: Shaheed Mohtarma Benazir Bhutto Medical College Liyari, Karachi

Address: Parsa Citi Garden East, Karachi

ORCID: 0000-0001-7975-6297

Word Count: 354

Conflict of interest : None

Acknowledgment : None

Declaration: None

Disclosure : None

Funding : None

Letter:

To the Editor,

We recently reviewed the article "Long-term renal function after venoarterial extracorporeal membrane oxygenation" by Brian ayers MD et al.[1] with deep interest. The article is well written, and the author's work is cherished and appreciated regarding this valuable topic. We agree with the study's conclusion that patients who underwent veno-arterial extracorporeal membrane oxygenation tend to have a low incidence of vulnerability to long-term dialysis. However, some concerns crop up, disturbing the efficacy of the study.

Firstly, as established, sepsis tends to affect multiple organs in the body and can result in multi-organ failure. Therefore the authors should have broadened their inclusion criteria because ignoring the patient characteristics may impact the study's findings. For illustration, a 2020 study opted to include simplified acute physiology score (SAPS11) and SOFA (sepsis-related organ failure assessment) scores as additional patient variables that strengthen their study.[2]secondly, plasma-free hemoglobin level has been strongly associated with an increased incidence of renal injury. Therefore authors should have considered the plasma-free hemoglobin levels and the number of blood units the patient required during extracorporeal membrane oxygenation. For representation, a 2019 study chose to include the numerical value of these two variables and found out strong association with renal injury.[3]

Moreover, neurological evaluation is associated with different outcomes in patients undergoing extracorporeal membrane oxygenation. The author's in their study failed to process their participants through neurological evaluation. For example, a 2020 study at regular intervals did a neurological evaluation such as pupil sizes, reactivity to light, and brain stem reflexes and found out that patients with acute cerebral strokes tend to have recurrent chronic kidney disease and a more extended stay in ICU.[4] Lastly, assessing the patient 24 hours urine output have proved to be strong forecast for mortality in patients. For illustration, a 2016 study included 24-hour urine assessment as a patient variable. It stated that considering patient 24-hour urine can lead to massive improvement in patient health conditions and assess short and long-term mortality in patients undergoing extracorporeal membrane oxygenation.[5]Finally, more studies should be conducted with different perspectives to minimize renal impairment in patients undergoing extracorporeal membrane oxygenation.

References:

1- Ayers B, Bjelic M, Kumar N, Wood K, Barrus B, Prasad S, Gosev I. Long-term renal function after venoarterial extracorporeal membrane oxygenation. J Card Surg. 2021 Mar;36(3):815-820. doi: 10.1111/jocs.15277. Epub 2021 Jan 8. PMID: 33416196.

2- Vinclair C, De Montmollin E, Sonneville R, Reuter J, Lebut J, Cally R, Mourvillier B, Neuville M, Ruckly S, Timsit JF, Bouadma L. Factors associated with major adverse kidney events in patients who underwent veno-arterial extracorporeal membrane oxygenation. Ann Intensive Care. 2020 Apr 20;10(1):44. doi: 10.1186/s13613-020-00656-w. PMID: 32307616; PMCID: PMC7167383.

3- Pabst D, Sanchez-Cueva PA, Soleimani B, Brehm CE. Predictors for acute and chronic renal failure and survival in patients supported with veno-arterial extracorporeal membrane oxygenation. Perfusion. 2020 Jul;35(5):402-408. doi: 10.1177/0267659119889521. Epub 2019 Dec 2. PMID: 31789108.

4- Laimoud M, Alanazi M. The clinical significance of blood lactate levels in evaluation of adult patients with veno-arterial extracorporeal membrane oxygenation. Egypt Heart J. 2020 Oct 27;72(1):74. doi: 10.1186/s43044-020-00108-7. PMID: 33108534; PMCID: PMC7588953.

5- Distelmaier K, Roth C, Binder C, Schrutka L, Schreiber C, Hoffelner F, Heinz G, Lang IM, Maurer G, Koinig H, Steinlechner B, Niessner A, Goliasch G. Urinary Output Predicts Survival in Patients Un-

dergoing Extracorporeal Membrane Oxygenation Following Cardiovascular Surgery. Crit Care Med. 2016 Mar;44(3):531-8. doi: 10.1097/CCM.0000000000001421. PMID: 26562346.