Mechanical Circulatory Support using Impella Devices for Cardiogenic Shock

Gabriella Gormas

James K. Wu MD
Lehigh Valley Health Network, james.wu@lvhn.org

Published In/Presented At

Gormas, G., Wu, J.K. (2021, August). *Mechanical Circulatory Support using Impella Devices for Cardiogenic Shock.* Poster Presented at: LVHN Research Scholar Program Poster Session, Lehigh Valley Health Network, Allentown, PA.

Mechanical Circulatory Support Using Impella for Cardiogenic Shock

Gabriella Gormas, Sajan Petel, Zach Appel, Maya Parekh, Dr. James K. Wu MD, MBA

Lehigh Valley Health Network, Allentown, Pennsylvania

Introduction

- Cardiogenic shock continues to be a prominent cause of mortality in patients suffering from various Cardiovascular issues.[1]
- The Impella is a short-term ventricular assist device that is inserted percutaneously into a patients' artery.
- The Impella device has shown to be a possible treatment option for cardiogenic shock, decreasing the mortality rate associated with this condition. [2]

Objectives

- Determine the effectiveness of Impella in the treatment of cardiogenic shock.
- Analyze the outcome of patient survival rate after Impella device insertion.

Methods

- Extensive chart review of 55 adult patients diagnosed with cardiogenic shock between 2018 and 2021 in a surgical cohort.
- Obtain patient demographics, date of Impella insertion, Impella device size and/or type, and outcome of support using patient charts in EPIC.

Results

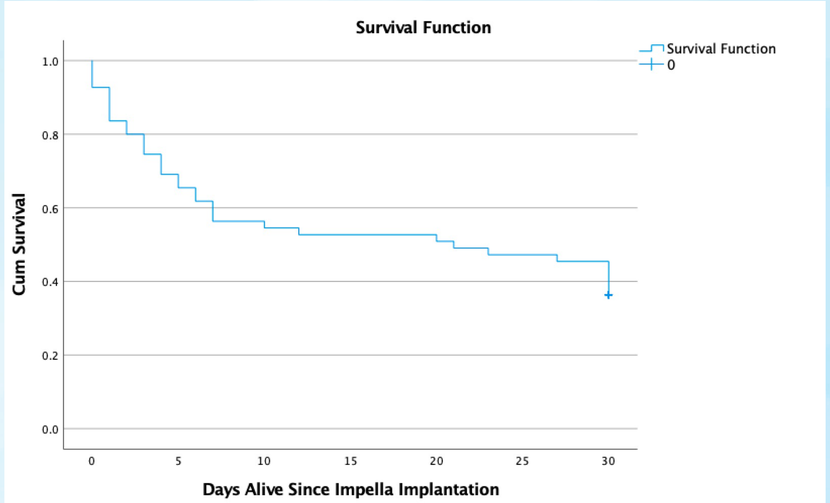

Figure 1. **Kaplan Meier Curve for the survival rate for the Impella device 30 days after insertion**

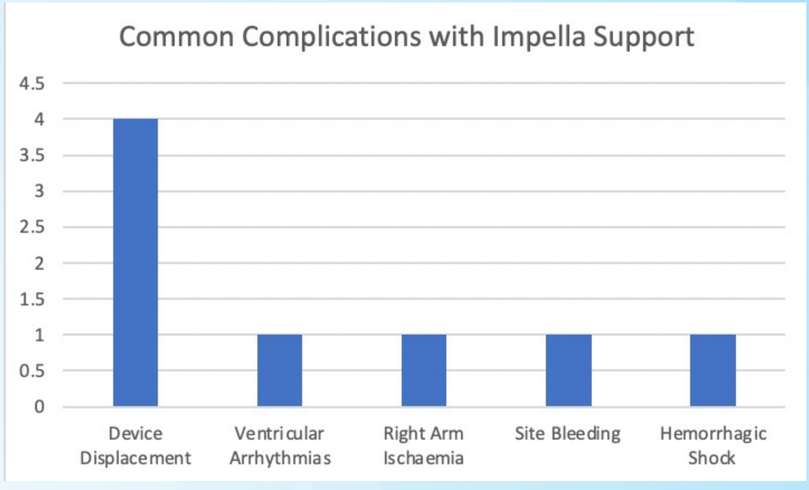

Figure 2. **Summary of medical complications resulting from Impella device implant**

Conclusions

- The approximate survival rate for patients after receiving the Impella device implant is 61.3%. (Figure 1)
- 51% of the patients had persisting cardiogenic shock that led to or was a factor of their death.
- 14.5% of the patients experienced a complication after the Impella device implantation with Device Displacement being the most common complication. (Figure 2)

Future Directions

- Continue to analyze the efficiency of the Impella device in a clinical setting and use results to modify treatment plans if necessary.
- Examine the outcome of Impella support in pediatric cardiovascular care, along with adult treatment of cardiogenic shock.
- Investigate differences in Impella device sizes in the treatment of cardiogenic shock.

References and Acknowledgements

1. Pediatrics, F. the *D. of. (n.d.). *Percutaneous Mechanical Circulatory Support Using Impella... : ASAIO Journal*. LWW. https://journals.lww.com/asaiojournal/FullText/2018/01000/Percutaneous_Mechanical_Circulatory_Support_Using.15.aspx.
2. Mina Karami, C. A. den U. (n.d.). *Mechanical circulatory support in cardiogenic shock from acute myocardial infarction: Impella CP/5.0 versus ECMO - Mina Karami, Corstiaan A den Uil, Dagmar M Ouweneel, Niels TB Scholte, Annemarie E Engström, Sakir Akin, Wim K Lagrand, Alexander PJ Vlaar, Lucia S Jewbali, José PS Henriques, 2020*. SAGE Journals. https://journals.sagepub.com/doi/full/10.1177/2048872619865891.

LVHN.org Lehigh Valley Health Network