



Fever and Leukocytosis are Poor Predictors of Infection in Patients Receiving Extracorporeal Membrane Oxygenation

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Disclosures/Disclaimer

- No disclosures
- The views expressed are those of the authors and do not reflect the official views or policy of the Department of Defense or its Components



Background

- Patients on ECMO are at high risk of nosocomial infection
- Infections are difficult to identify due to fixed parameters on ECMO circuit
- Temperature and WBC are often used clinically, but their utility in identifying infections is unclear



Methods

- Single center, retrospective study
- Influenza or COVID-19 patients requiring ECMO from December 2014 – December 2020
- Analyzed cultures drawn from patients without clinical decompensation
- Temperature and WBC measured on day of culture collection and 24 hours prior
- Statistics: Chi-squared and Mann-Whitney U as appropriate

Results

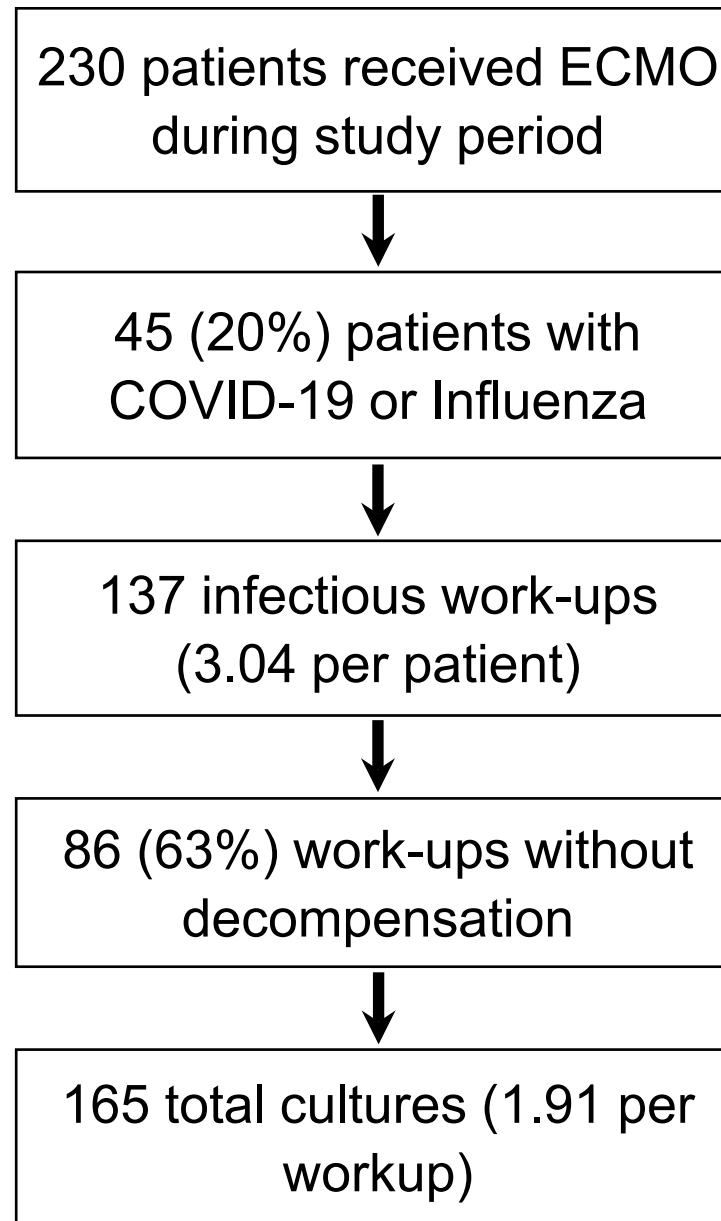


Figure 1. Flow chart depicts inclusion criteria with resultant 165 total cultures included in study.



Table 1 - Patient Demographics of 45 Patients at BAMC who Received ECMO between December 2014-2020

Age, median (IQR)	44 (36-53)
Male, n (%)	38 (84%)
Hours on ECMO, median (IQR)	360 (183-666)
Diagnosis	
COVID-19, n (%)	25 (56%)
Influenza, n (%)	20 (44%)
True Infection, total	10
Blood Stream Infection, total	6
Respiratory Infection, total	3
Urinary Tract Infection, total	1



Table 2 – Low Culture Positivity Rates in Cohort

	True Positive	Contaminants	Total Cultures	True Positive Rate	Contamination Rate
Blood Cultures	6	3	73	8.2%	4.1%
Respiratory Cultures	3	6	39	7.7%	15.4%
Urine Cultures	1	5	53	1.9%	9.4%
Total	10	14	165	6.1%	8.5%

Figure 2 - No Difference in Temperature or WBC in Infectious Versus Non-infectious Etiologies

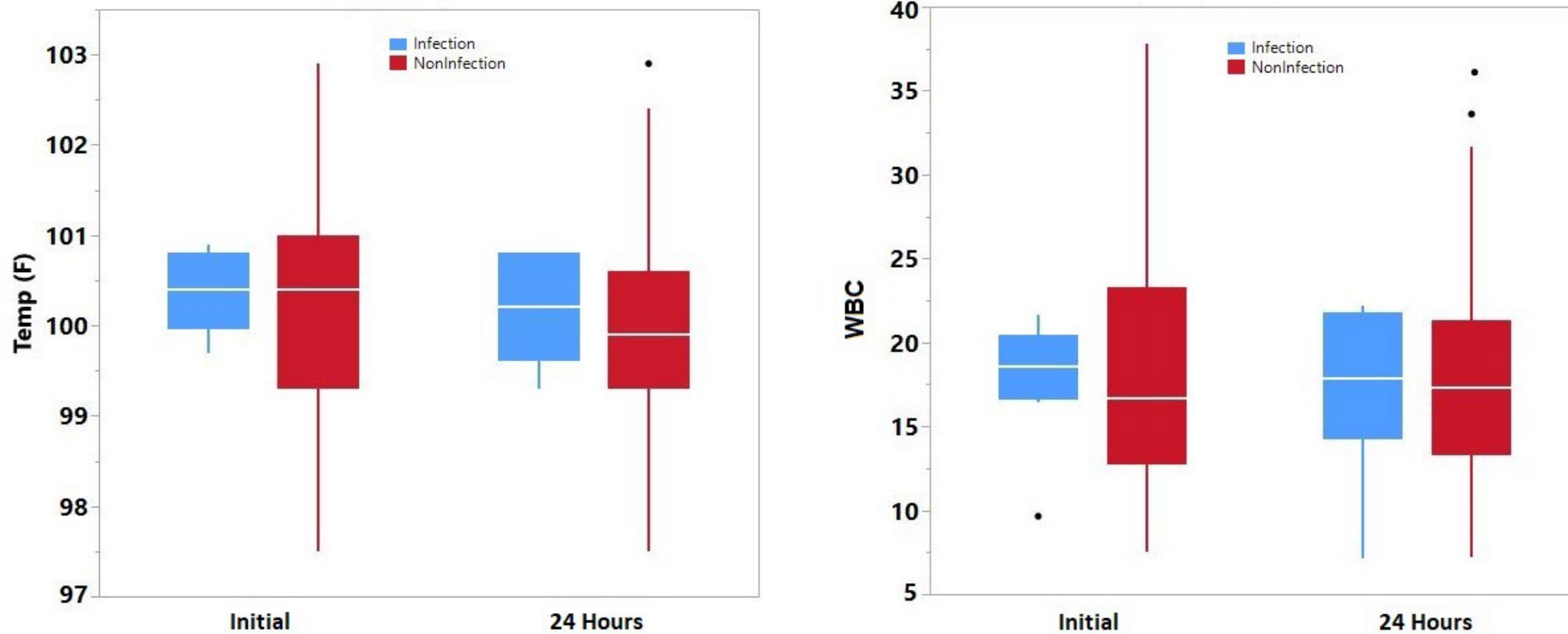


Figure 2. Maximum values recorded on day of culture workup and 24 hours prior.



Discussion/Conclusion

- Fever and leukocytosis were commonly seen during ECMO course and were frequent prompts for culture workup
- There was no difference in median temperature and WBC between patients with true infection and patients without infections
- More research is needed to help determine factors associated with infections in patients receiving ECMO

Questions?

References

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2. Grasselli, G., Scaravilli, V., Di Bella, S., Biffi, S., Bombino, M., Patroniti, N., Bisi, L., Peri, A. M., Pesenti, A., Gori, A., & Alagna, L. (2017). Nosocomial Infections During Extracorporeal Membrane Oxygenation: Incidence, Etiology, and Impact on Patients' Outcome. *Critical care medicine*, *45*(10), 1726–1733. <https://doi.org/10.1097/CCM.0000000000002652>