

Perioperative Considerations for Extracorporeal Membrane Oxygenation.



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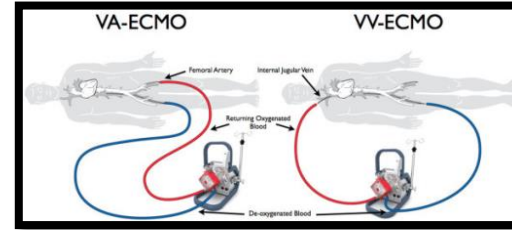


Problem

- Successful completion of AdventHealth University's (AHU) Nurse Anesthesia Program includes a 5 week rotation in the Cardiovascular operating room during which SRNAs may have the opportunity to care for patients requiring ECMO for hemodynamic support.
- Due to the various ICU backgrounds of the SRNAs, the investigator realized a deficit in knowledge regarding perioperative care for patients on ECMO.
- To address the issue a thorough literature review was conducted with the goal of enhancing the knowledge base regarding care considerations for patients requiring ECMO.

Literature Review

- Preoperative assessment is imperative to formulating and anesthetic plan for the ECMO patient. The Anesthesia provider should know what the ECMO is being used for, cannulation sites, recent diagnostic studies, and laboratory values (Meng et al. 2017; Kapoor, 2017).
- Anticoagulation is a necessity due to the inflammatory trigger caused by the ECMO circuit resulting in a hypercoagulable state (Esper et al., 2014 & Meng et al., 2017).
- Fluid volume resuscitation may be indicated for the ECMO patient. Anesthesiologist found TEE to be the most reliable indicator to fluid volume status (Aronson et al. 2017)
- Drug sequestration in the circuit can alter the distribution of anesthetics especially highly lipophilic and protein bound drugs (Lemaitre et al., 2015; Meng et al, 2007; Ha et al, 2017).



Methods

- Quantitative Design
- Informed consent obtained from all participants
- A PowerPoint presentation was given to 22 SRNA students during clinical conference Fall 2018.
- A 10 question anonymous pre-test and post- test (identical test) was administered to participants following the 30 minute educational PowerPoint to evaluate mean test scores.
- Results of the test were went to AHU statistician and a paired t -test was used to analyze the data.

Analysis/ Conclusion

- Analysis of mean pre-tests and post-test indicated an improvement of scores from 47.72 % to 93.18% .
- The t –value was -10.44 (p <.001) indicating the findings to be statistically significant, and the aim of the investigator met.
- Limitations of this scholarly project was the small homogenous sample size of 22 participants and the short time between administration of the pre-test and post- tests. To most accurately evaluate retention the post test would have been administered roughly a week after the PowerPoint.

Paired Sample Statistics

Pair 1	Mean	N	Std. Deviation	Std. Error Mean
Pe-test	.4772	22	19.74403	4.20944
Post -test	.9318	22	7.1623	1.52701

Paired Samples Test

	Paired Differences				t	df	Sig. (2-tailed)		
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower				Upper	
Pair 1	PreTest - PostTest	-45.4935	20.40711	4.35881	-54.50205	-36.48554	-10.447	21	.000

Findings

- The goal of increasing the knowledge base of the 22 participant's was successful. Which can serve as a tool In formulating a safe and effective plan of care for patients requiring ECMO.

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