

Optimizing Anesthetic Care for Jehovah's Witnesses Regarding Alternatives to Blood Products

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Chi Upsilon Chapter

Problem

- Acute blood loss is a potential risk factor for major cardiovascular surgery
- Jehovah's Witness are known for refusing blood transfusions
- In Jehovah's Witness patients (P) having major cardiovascular surgery, does the use of blood product alternatives & interventions (I) maintain cardiovascular stability and decrease morbidity and mortality (O) during the perioperative period (T)?
- Will a 30-minute (T) educational PowerPoint presentation (I) for SRNAs attending ADU (P) about blood product alternatives & interventions increase their knowledge base on how to optimize anesthetic care (O) for Jehovah's Witnesses?

Literature Review

- Jehovah's Witness- 8.4 million worldwide & 1.2 million in the United States
- 1945- Refuse all forms blood transfusion & blood products
- Refusal of blood products vary patient to patient
- Beliefs center around Bible scripture interpretation & current research

Position	Allogeneic blood	Autologous blood
Refused	Whole blood	
Potentially acceptable	Red cells Fractions from red cells • Hemin • Hemoglobin	Plasma Fractions from plasma • Albumin • Clotting factors • Fibrinogen • Immunoglobulins

Figure 1. Jehovah's Witnesses' Position on Allogeneic and Autologous Blood

Abbreviations: Blood salvage, blood cell salvage

Preoperative planning:

- ✓ Discuss surgery & risk of blood loss, multidisciplinary team coordination, detailed review of medical history, & discuss blood product alternatives & interventions acceptable to the patient
- ✓ Iron & Recombinant human erythropoietin (EPO)- Recommendations to start therapy 3-4 weeks pre-op
- ✓ D/C medication and herbal supplements that impair clotting
- ✓ Correct coagulopathies (acquired &/or inherited)
- ✓ Appropriate monitoring of labs, minimize phlebotomy

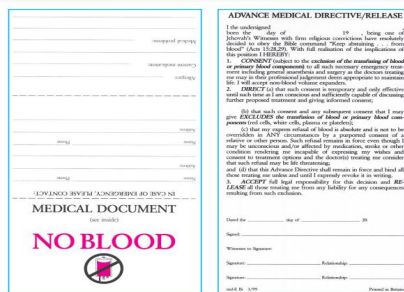
Intraoperative Interventions:

- ✓ Maintain normothermia
- ✓ Blood Product Alternatives- Protamine sulfate, Vitamin K, PCC, TXA, *Aprotinin, *Recombinant factor VII and IX
- ✓ Appropriate patient positioning
- ✓ *Acute normovolemic hemodilution (ANH) & Normovolemia hemodilution
- ✓ Controlled Hypotension- caution w/ PMH CAD, CVA, uncontrolled HTN
- ✓ Hemostasis- coordinated with surgeon

GOAL: ↑ Hemoglobin production, optimize oxygen delivery & consumption minimize blood loss, & promote hemostasis

Methods

- Quantitative study approved by IRB & SRC
- 30-minute educational PowerPoint presentation presented to AHU NAP senior SRNAs
- Inclusion required voluntary signed informed consent
- 10-question multiple choice pre-test followed by same 10-question post-test administered after PowerPoint
- Total participants n=22
- Test scores analyzed by AHU statistician



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References Available Upon Request

Analysis & Conclusion

- A paired sample t test was conducted to analyze the data collected using SPSS
- The t value -12.754 is associated with $p < .001$ which is statistically significant.
- It was concluded that the average percentage test scores increased significantly between Pre-test (40.45%) and Posttest (81.82%)

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreTest	22	.21264	.04534
	PostTest	22	.10970	.02339

Paired Samples Test								
		Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower			
Pair 1	Pre-Test - Post-Test	-.41384	.15211	.03243	-.48108	-.34619	-12.754	.000

Findings & Limitations

- Statistical analysis of data showed an overall increased in average test scores by 41.37%.
- The educational PowerPoint was successful in increasing knowledge base of senior SRNAs regarding the current beliefs of Jehovah's Witnesses and acceptable alternatives to blood products
- Limitations included small homogenous sample size of 23 AHU senior SRNAs.
- Further limitations were the exclusion of one student for late arrival and failure to sign an informed consent, making the final sample size n=22.
- Knowledge gained can be utilized by the SRNAs in the clinical setting and throughout their anesthesia career
- In the future, this scholarly project may lead more development of a protocols or guidelines for perioperative care of the Jehovah's Witness patient having cardiovascular surgery.