

The Prevention of Post-Operative Delirium in the Pediatric Population

Problem

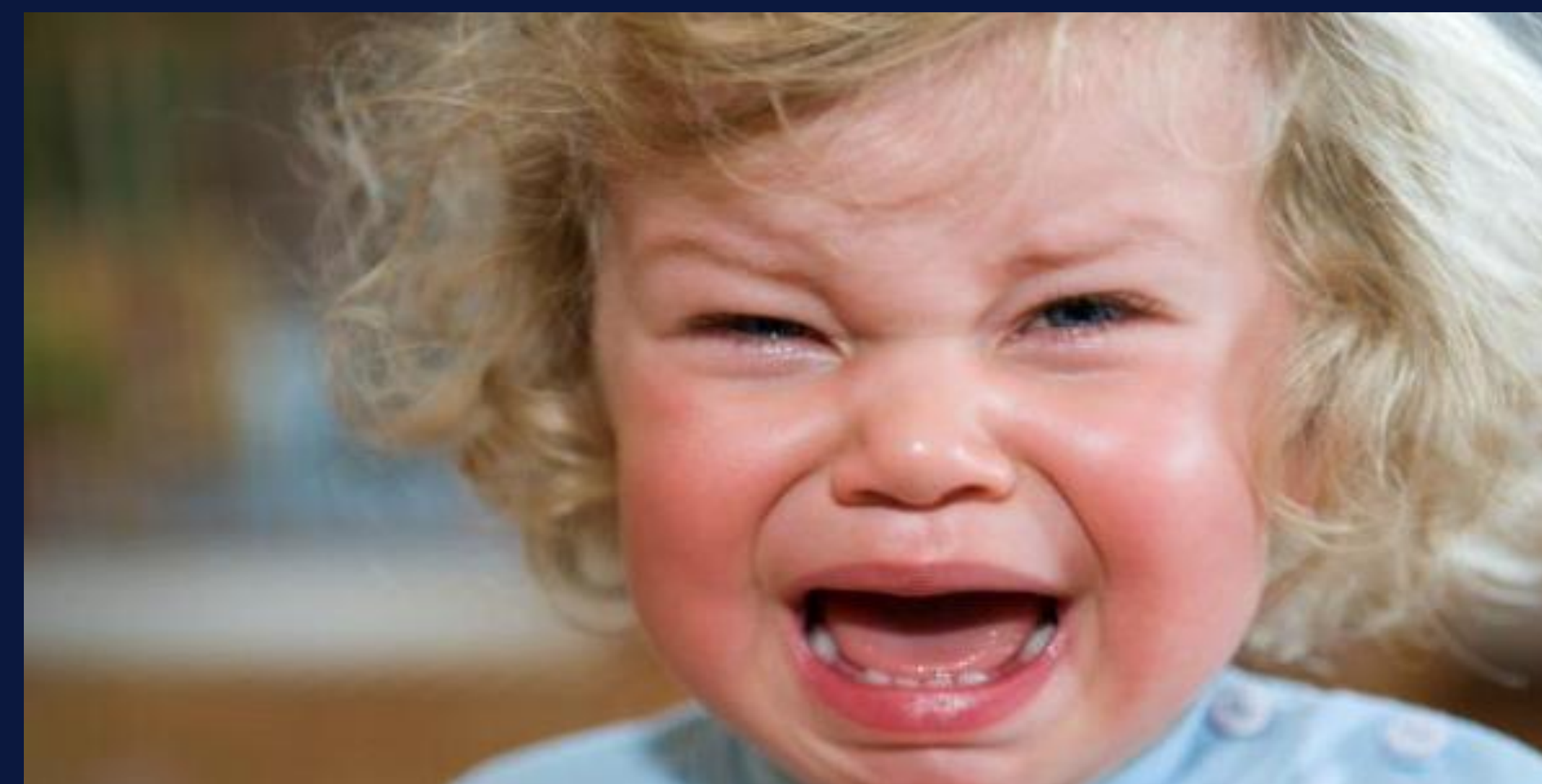
Emergence delirium (ED) is cluster of behaviors in the post anesthetic period. It can result in:

- Negative emotional effects for up to 6 months.
- Physical injury
- An increase in utilization of hospital resources

Developed research questions:

•PICO: In the pediatric population (P) how effective are pharmacological interventions (I) as compared to previously traditional approaches (C) in the prevention of ED (O) in the postoperative period (T)?

•PICO: In Adventist University student registered nurse anesthetists (P), will a 30-minute (T) educational presentation about the pharmacological prevention of pediatric emergence (I) delirium result in an increase in understanding and knowledge (O)? No comparison necessary.



Literature Review Cont'd

Contributing Factors to Post-Operative Delirium

- Young age
- Parental stress
- Very few siblings
- Reduced sociability
- Poor quality of previous medical experience
- Lack of enrollment in a day care
- Males
- Preoperative anxiety (Dahmani et al., 2014; Hoff et al., 2015).

A common Assessment tool for ED is the Pediatric Anesthesia Emergence Scale (Bong et al., 2014; Dahmani et al., 2014; Hoff et al., 2015; Zhu et al., 2015).

Pediatric Anesthesia Emergence Delirium Scale: Circle One Number for Each Row

Scale	Not at All	Just a Little	Quite a Bit	Very Much	Extremely
The child makes eye contact with the caregiver	4	3	2	1	0
The child's actions are purposeful	4	3	2	1	0
The child is aware of his/her surroundings	4	3	2	1	0
The child is restless	0	1	2	3	4
The child is inconsolable	0	1	2	3	4

The Timing of Administration of Propofol and Dexmedetomidine shown to be most effective

- A single bolus dose of Propofol during emergence (Dahmani et al., 2014; Hoff et al., 2015).
- A single dose of Dexmedetomidine administered approximately fifteen minutes before the end of the surgery (Makkar et al., 2016).

Analysis

- Paired sample t-test
- Predetermined significance of $p < .05$.
- Statistical significance demonstrated by $t(25) = -5.211, p < .001$ increase in knowledge of the students between the mean pre-test ($M=65.38, SD=29.96$) and the post-test ($M=92.31, SD=9.51$).

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	65.3846	26	29.96408	5.87644
	Post-Test	92.3077	26	9.51113	1.86529

Paired Samples Test									
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Paired Differences				
					Lower	Upper			
Pair 1	Pre-Test - Post-Test	-26.92308	26.34680	5.16703	-37.56478	-16.28137	-5.211	25	.000



Findings

Dexmedetomidine and Propofol administered just prior to emergence has been shown to be effective in the prevention of ED in the pediatric population. Presenting this information through a power point presentation was effective in increasing knowledge on ED.

Acknowledgements

We would like to thank Dr. Snell, Hilary Martino, and Dr. Roy Lukman for their time, participation, and guidance.

Literature Review

Etiology

- Unknown
- Associated with rapid emergence from volatile anesthetics (Martin et al., 2014).

Risk of injury in Postoperative Emergence Delirium

ED can lead to unintended self-injury of the child, and present itself with the child in an excited and disorientated state (Hoff et al., 2015).

Delayed PACU Time and Recovery

According to Zhu et al. (2015), There was a direct correlation in the treatment of ED and extended PACU time.

Methods

- Pre-test and post-test design.
- A convenience sample, consisting of twenty-seven junior SRNAs were presented with an ED educational PowerPoint.
- Inclusion criteria consisted of all junior SRNAs enrolled in ADU.
- Exclusion criteria included: SRNAs not enrolled in ADU, absent students, and students failing to sign informed consent.
- Students were presented with a 10-question multiple choice test prior to presentation and an identical test post presentation

Conclusion

A power point presentation was effective in increasing the knowledge base of the 2019 SRNA cohort regarding the prevention of pediatric ED. Limitations included: Small sample size and limited number of test questions.

It is hoped that the knowledge obtained through the presentation will assist the 2019 SRNAs as they start their pediatric rotations.



References

All references are available upon request.