Best Practices for Prevention of Perioperative Ocular Injuries

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ADVENTIST UNIVERSITY OF HEALTH SCIENCES

Sigma Chi Upsilon Chapter

Problem

- What are **identifiable risk factors** of POI in patients undergoing general anesthesia for non-ocular related surgeries that SRNAs with limited experience with management of POI (P) may be educated about (I) to increase SRNA knowledge base (O)
- **What are the current evidence-based practices** for prevention of POI in patients undergoing general anesthesia for non-ocular related surgeries that SRNAs with limited experience with management of POI (P) may be educated about (I) to increase SRNA knowledge base (O)

Literature Review

- **Corneal abrasion most common POI**
- **Median POI payout: $67,500**
- Risk Factors
    - GA alone decreases tear production, male gender, head or neck surgery, lateral or prone positioning, dehydration, duration >90 minutes
    - Environmental hazards: stethoscope, badges, laryngoscopes, prep solutions
- Interventions
    - Variations on ensuring complete lid closure with tape or hydrogel patches
    - With / without artificial tears or lubricant
- Provider Education
    - Performance improvement initiatives
    - Literature review modules with completion tests
    - Education improves awareness of POI.

Methods

- With SRC and IRB approval, an educational PowerPoint presentation based on current literature presented to the 2018 and 2019 ADU SRNA cohorts
- Pre-tests utilized as a knowledge baseline
- After informative PowerPoint, identical post-tests administered
- Data analyzed by ADU statistician
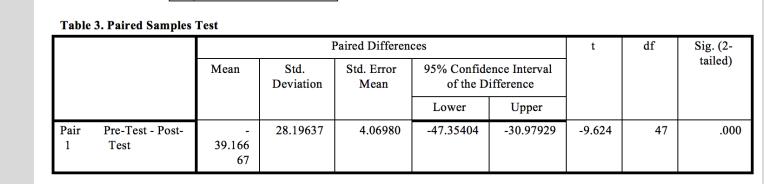

Analysis and Conclusions

- When comparing pre- and post-test mean percentage scores, the post-test scores increased significantly **(p <.0001).**
- The outcome of this scholarly project was an increase in awareness and knowledge of current POI literature among SRNAs.
- Therefore, regarding the aim of the study to increase SRNA knowledge base of POIs, the scholarly project was relevant and successful.

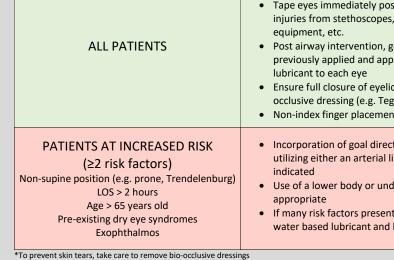## Findings

- Recommendations for preventative measures of POI based on current literature
    - **Provider vigilance**
    - **Mechanical/Chemical protection**
        - **Taping eyes immediately after induction,** Eye ointment/lubrication, Artificial tears, Hydrogel patches or Bio-occlusive dressings
    - Optimizing fluid status
    - Maintaining a neutral patient head position

Table 3. 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	Pre-Test – Post-Test	-39.16667	28.19637	4.06980	-47.35404	-30.97929	-9.624	47	.000

Table 4. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	29.1667	48	16.35163	2.36015
	Post-Test	68.3333	48	23.64033	3.41219

CORNEAL ABRASION PREVENTION

ALL PATIENTS	• Tape eyes immediately post-induction to prevent injuries from stethoscopes, ID badges, airway equipment, etc. • Post airway intervention, gently remove tape previously applied and apply thin layer of water based lubricant to each eye • Ensure full closure of eyelid and then place small bio-occlusive dressing (e.g. Tegaderm™) over each eye* • Non-index finger placement of pulse oximeter
PATIENTS AT INCREASED RISK (≥2 risk factors) Non-supine position (e.g. prone, Trendelenburg) LOS > 2 hours Age > 65 years old Pre-existing dry eye syndromes Exophthalmos	• Incorporation of goal directed fluid management utilizing either an arterial line or Clearsight™ as indicated • Use of a lower body or under body warming device as appropriate • If many risk factors present, consider re-application of water based lubricant and bio-occlusive dressings

*To prevent skin tears, take care to remove bio-occlusive dressings

Courtesy USAP-JLR, 2017