Dexamethasone as adjunct in peripheral nerve blocks to extend analgesia

Wendy Sayvongsone, RN, BSN, SRNA , Martha G. Velez, RN, BSN, SRNA
Project Mentor: Matt Newbern, MD US Anesthesia Partners- Florida
Committee Chair: Manuel Tolosa, DNAP, CRNA AHU Nurse Anesthesia Department
AdventHealth University: Department of Nurse Anesthesia

PROBLEM

Opiates have long been considered a cornerstone of pain management. Opioids have recently been in the spot light for a wide range of negative consequences: increased morbidity and mortality in cancer patients, drug abuse and misuse, drug shortages and opiate overdose related deaths. As a result there is significant interest in alternative analgesics. Ideal analgesics are affordable and offer significant pain relief at the same time avoiding respiratory depression, over sedation, GI upset, and have low abuse potential.

LITERATURE REVIEW

Several major themes of dexamethasone use surfaced in the literature revealing that perineural administration of dexamethasone in peripheral nerve blocks demonstrated promise to its safe and effective use to manage post operative pain

Use of dexamethasone in femoral nerve blocks following knee arthroplasty have been shown to reduce the amount of opioid use within the first 24 hours (Naim, 2016; Natarajan, 2017)

Dexamethasone intravenous and/or perineural administration proves to be beneficial in providing prolonged pain relief in orthopedic patients receiving peripheral nerve blocks (Naim, 2016; Natarajan, 2017)

LA in PNB provide less side effects from opiate use, and help patients mobilize quicker, which will lead to less overall complications and a shorter hospital stay which equals better outcomes (Ikeuchi, 2014; Naim, 2016)

METHODS

Design: Educational presentation for SRNAs, assessment of their baseline knowledge, and comparison of post-presentation test scores to assess the level of knowledge increase

Setting: The SRNA classroom per AHU faculty assignment

Targets: Senior SRNA students

Inclusion Criteria: The senior SRNAs in the 2019 cohort present for thirty minute educational exhibition

Implementation: After SRC & IRB approval on presentation day informed consent was acquired then SRNAs completed a pre-test to assess baseline knowledge, listened to a thirty minute educational presentation, and then were presented with a post-test to assess their knowledge after the lecture. Surveys were analyzed in the SPSS program, results are as follows:

ANALYSIS & CONCLUSION

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	3.6500	20	1.56525	.35000
	Post-Test	8.3500	20	2.00722	.44883

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	-4.70000	2.29645	.51350	-5.77477	-3.62523	-9.153	19	.000

The paired samples t test was conducted to analyze your data. The obtained t value of -9.153 is associated with p < .001 which is statistically significant. It therefore can be concluded that the students' average scores increased significantly between PreTest and PostTest assessments.

FINDINGS

- Perineural dexamethasone has a safe profile and has a favorable effect when combined with local anesthetic for peripheral nerve blocks (PNB)
- Dexamethasone has been shown to lengthen the duration of PNB when compared to placebo.
- When appropriate a dexamethasone adjunct to PNB as part of a multimodal approach to analgesia should result in decreased pain scores with an improvement in side effect profile.
- This scholarly project showed that a SRNA students' knowledge base increased after a presentation on dexamethasone as adjunct for PNB

REFERENCES

References are available upon request.

ACKNOWLEDGEMENTS

Special acknowledgment to Dr. Mathew Newbern for the guidance and support in the development of this presentation.

Acknowledgement to Manuel Tolosa, DNAP, CRNA for the leadership and direction of this scholarly project

Acknowledgement to Dr. Roy Lukman with statistical analysis assistance