

Sufentanil and its Application in the Clinical Setting

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ABSTRACT

- The purpose of this research study was to assess the level of understanding within the Adventist University student registered nurse anesthetists regarding sufentanil and its application in the clinical setting.
- As future anesthesia providers, SRNAs, need to be not only knowledgeable and familiar with the variety of modalities available, but also be proficient in utilizing them. Having a strong theoretical knowledge about sufentanil and familiarizing oneself with its practical applications can promote its safe utilization in the clinical setting.
- A literature review of sufentanil and its application in the clinical setting was conducted in preparation for this study. After the literature review was completed, a PowerPoint presentation was assembled and presented to 37 SRNAs graduating cohorts of 2017 and 2018.
- Pre-tests were administered prior to the presentation to evaluate the SRNAs baseline knowledge on sufentanil. After completion of the lecture, each student filled out post-test in order to assess the effectiveness of the lecture.
- Data was analyzed using the paired sample t-test, which yielded statistical significance with a P value <0.05. In conclusion, the improvement of the post-tests when compared to the pre- tests suggested that the SRNAs developed a better understanding of sufentanil and its application in the clinical setting.

PROBLEM

- The aim of this study was to educate SRNAs about pharmacodynamics and pharmacokinetics of sufentanil, and its appropriate clinical applications.
- Sufentanil is proven to be one of the safest and strongest opioids available, an effective analgesic/anesthetic that is underutilized in the clinical practice.
- Precursor of sufentanil, fentanyl, is still being used the majority of the time during surgical anesthesia and procedural analgesia due to low cost and provider familiarity.

REVIEW OF LITERATURE

- Sufentanil is a piperadine-derived mu agonist opioid (Lundeberg & Roelofse, 2011).
- Sufentanil is powerful and safe, with very limited side effects, synthetic opioid analgesic that can be used as supplementation to general anesthesia or as primary anesthetic that can be used for the induction and maintenance of anesthesia (Scholz et al., 2012).

• Sufentanil can be administered by intravenous, epidural, intrathecal injections, also by transdermal, sublingual and intranasal application. It has a wide range of applications in pediatrics, geriatrics, plastics, neuro, obstetrics, and general surgery (Lundeberg & Roelofse, 2010).

• Sufentanil is not as widely utilized, but is one of the strongest and safest clinical opioids available. (Vardanyan & Hruby, 2014).

• Limited side effects of sufentanil, together with its attractive pharmacokinetic and pharmacodynamic profiles, should promote its wider use in clinical practice (Maciejewski, 2012).

RESULTS

- The paired samples t-test was conducted to compare the pre-test and post-test average scores. The obtained t is -16.696 (P <.05) which is statistically significant. It can be concluded that the average scores increased significantly (from pre-test 56.49% to post-test 91.08%).

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	.5649	37	.13787	.02267
	Post-Test	.9108	37	.08427	.01385

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	-.34595	.12604	.02072	-.38797	-.30392	-16.696	36	.000

CONCLUSIONS

- Data analysis revealed a statistically significant increase in understanding regarding sufentanil from pre-test to post-test.
- The higher score on the post-test after the sufentanil presentation indicated the effectiveness of the presentation as it relates to the students ability to identify benefits, side effects, as well as pharmacokinetics and pharmacodynamics of sufentanil and its clinical application.