The purpose of this research study was to evaluate student registered nurse anesthetists (SRNA) at Adventist University of Health Sciences on their knowledge of Remifentanil as an analgesic for labor pain in the parturient patient.

As more obstetric disorders are encountered that prohibit placement of an epidural, student registered nurse anesthetists need to be educated and informed on alternative labor pain analgesics.

After the literature review was completed, a PowerPoint presentation was assembled and presented to 26 SRNAs during their class that focused on the obstetric population and anesthesia management.

Data were then analyzed using the paired sample t test, which yielded statistical significance with a P value <0.05.

According to Celewicz (2015), since the mid 1980s the implementation of epidurals in American healthcare, there is a need for the education among SRNAs and healthcare providers as a whole.

This PowerPoint presentation not only helped the students become familiar with the pharmacodynamic properties of Remifentanil but also helped them understand the parturient labor pain and different options that could be used to control the pain.

Conclusions

The results of the pre-test scores showed that teaching was needed in regards to the purpose of Remifentanil PCA’s in the parturient population. Though the pre-test average score was 52.93%, there was still need for much knowledge-based improvement over this subject.

The post-test results showed that there was an increase in average in regards to pre and post-test scores.

This dramatic increase concluded that the students retained knowledge from the presentation and was able to answer questions regarding Remifentanil whereas prior to the PowerPoint presentation, there was a knowledge deficit.

The obtained t value of -9.551 was associated with a p value of less than the conventional .05 level of confidence. Therefore, it can be concluded that the average scores increased significantly between pre-test and post-test administrations.

Review of Literature

Maternal Satisfaction

Many of the studies demonstrated that majority of mothers (62% - 86%) had HIGH satisfaction scores after using Remifentanil (Devabhakthuni, 2013).

Concerns for Respiratory Depression

In a study by Stocki et al. (2014), oxygen saturation levels were closely monitored during all apnea events. Oxygen saturation levels remained above 94% throughout Remifentanil PCA infusions with 59.3% of the 27 apnea events recorded and only 22.2% of apnea events resulted in oxygen saturation levels less than 94% (Stocki et al., 2014).

Drug Effects on Neonate

According to Tvet et al. (2013), though the Remifentanil dose in the fetus is 50% of the maternal concentration, there is still concerns for neonatal safety, especially due to respiratory depression. This study suggested that more studies with larger patient populations were needed for a definite conclusion.

Ultiva vs. Other IV analgesics

Though both Fentanyl and Remifentanil effectively decreased pain scores in parturients, more neonates in the Fentanyl group (59%) required resuscitation compared to neonates in the Remifentanil group (25%).

Pharmacokinetics

Unlike other opioids, Remifentanil has a propanoic acid-methyl ester linkage to undergoes rapid hydrolysis by non-specific plasma/tissue esterases.

Normal drug action in patients with atypical cholinesterase.

70% bound to plasma proteins, with 2/3 binding to alpha-1-acid-glycoprotein

Metabolized to Carboxyl acid

Excrcion depends on renal clearance, but metabolites are mostly inactive so not influenced by hepatic or renal failure.

Abstract

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