Nebulized Magnesium in the Acute Treatment of Asthmatics in the Pediatric Population

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Problem
- Pediatric complications caused by asthma can result in catastrophic outcomes
- Empirical research to apply evidence-based practice for pediatric patients with acute asthma conditions
- New treatment modalities such as intravenous or nebulized magnesium to decrease cost, increase positive outcomes, and improve patient satisfaction
- Up to 25% of reported pediatric cardiac arrests are respiratory related

Literature Review
- Asthma is a chronic lung disease with complications in airflow obstruction.
- Respiratory-related events account for ¾ of perioperative incidents in pediatric anesthesia and 50% of cardiac arrests (Regli & Ungern, 2015).
- Diagnosis:
  - FEV1 <80% and PEF <50% (Kokturk et al., 2005).
  - Severe asthma correlates with a PEFR <40%-50%
  - Adventitious breath sounds
- Perioperative triggering agents: Intraoperative positioning, anesthetic agents, and ventilation modes (Trachsel, Svendsen, Erb, & von Ungern-Sternberg, 2016). Albuali, 2014 endotracheal tube insertion, airway manipulation, copious secretions, cold dry air, crying, and situations that are perceived as stressful.
- Anesthetic implications:
  - Use of traditional treatments:
    - Salbutamol
    - Corticosteroids
    - Ketamine
    - Anesthetic Gases
  - Nebulized or IV Magnesium

Methods
- Quantitative design
- A 30-minute Power Point presentation approved by SRC and IRB was presented to 21 participants from the AHU NAP
- Informed consent and a pre-test was obtained prior to the presentation in fall of 2018
- The post-test was completed after the educational presentation
- Results were obtained and a statistician performed a statistical analysis through paired t-test

Findings
- Recommendations for acute asthmatic exacerbation:
  - Mg combined with traditional treatment modalities:
    - Salbutamol
    - Atrovent
    - Steroids
  - Improves PFTs
  - Reduces hospitalization cost related to asthmatic exacerbations

Analysis and conclusions
- Comparing pre and post-test there was a 30% increase in knowledge base with a p < 0.001
- Results demonstrated, a 30-minute power point presentation was efficacious in increasing the knowledge base of AHU SRNAs about nebulized magnesium

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Paired Samples Test

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