“Promoting Good Stewardship” in Pediatric Anesthesiology
Top 5 Changes in Practice That Can Make Pediatric Anesthesiology Safer
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Background: Promoting Good Stewardship in Medicine

- Beginning in 2009 The National Physicians Alliance (NPA) began a campaign to promote high quality, fiscally responsible health care.
- The Goal: “identify five steps primary care physicians [can] take in their daily practices to achieve …excellent care that we can afford together.”

The Results:
- Top of Internal Medicine:
  - Don’t image for low back pain within the first six weeks unless red flags are present.
  - Don’t obtain blood chemistry panel or urinalysis for outpatient, otherwise healthy patients.
  - Don’t order annual ECG’s or any other cardiac screening for asymptomatic, low risk patients.
  - Use only generic statins when initiating lipid-lowering drug therapy.
  - Don’t use DEXA screening for osteoporosis in women

Top 5 of Pediatrics:
- Don’t obtain diagnostic images for minor head injuries without loss of consciousness or other risk factors.
- Advise parents not to use cough and cold medications.
- Use inhaled corticosteroids to control asthma appropriately.
- Don’t prescribe constipation beading phenylalanine under the patient tests positive for streptococcus.
- Don’t refer children with allergy early (with 3 months) in the course of the problem.

Further Developments:
- The American Board of Internal Medicine has started The Choosing Wisely Campaign with the goal of identifying 5 diagnostic tests and/or procedures within each medical specialty or subspecialty “whose necessity should be questioned and discussed.” Since beginning this campaign 20 specialty and subspecialty organizations have participated in making “Top 5” lists.

Pediatric Anesthesia Top 5 Possibilities:
- Advising against the use of codeine in post-operative pain management:
  - Within any given population there are several codeine-metabolizing phenotypes, i.e., CYP2D6 slow and ultrarapid metabolizers, and those who have “reduced enzyme activity.” Given the diversities of phenotypes within our patient population, the risks associated with these phenotypes (especially opioid-related) are increased, and the availability of many other therapeutic options—is it efficacious to continue to use codeine for post-operative pain management? 1, 18, 20, 21, 22

- Discouraging the use of DLSR as an intra-operative fluid:
  - In 1986, Wellborn, et al. reported the incidence of hypoglycemia in two patients under anesthesia who were fasting for prolonged periods before surgery. They also showed hypoglycemia in all patients given DLSR for intraoperative fluids. With hyperglycemia potentially causing diuresis and worsening outcomes in diabetic patients. Individualized, goal-directed fluid therapy is more appropriate. 23, 24

- Cuffed ETT’s are more efficacious for airway management than uncuffed ETT’s:
  - Cuffed endotracheal tubes allow practitioners to secure the pediatric airway faster, monitor post intubation ventilation more consistently, and decrease upper airway contamination of volatile anesthetics, when compared to appropriately sized uncuffed endotracheal tubes. 25, 26

- Encouraging 100% compliance with universal precautions for all procedures:
  - In 1991, OSHA required standard for Occupational Exposure to Blood-Borne Pathogens to be fully implemented by July of 1992. A survey by Tay & Tuttle in 1995 reported that only 49% of respondents always used gloves in the OR. However, many newer modifications to assist in airway management, and there is greater understanding of the serious and potentially life-threatening adverse reactions associated with succinylcholine. 3, 10, 12, 20, 42

- Encouraging the use of ultrasound guidance for all caudal blocks:
  - The caudal block has a historically high success rate and a very rapid learning curve in anesthesia trainees. However, this block is sometimes performed without ultrasound guidance during the skill technique. Increasing numbers of studies have shown that caudal blocks placed under ultrasound guidance allows for evaluation of anatomical anomalies, increased safety, and increased success. 45, 77, 88

- Encouraging a standardized method for high risk medication preparation:
  - Medication errors are under reported in anesthetic practice, but errors in medication orders, preparation, and delivery can have significant consequences. Standardizing the way in which high risk medication disposition is handled is one way to prevent these errors. i.e. prepared by a pharmacist or double checked by another anesthesiology provider. 4, 14, 18, 44

- Discouraging the routine use of premedication in pre-operative preparation:
  - Many advances have been made in pediatric anesthesia in the past 30 years. Inhalational anesthetics now exist that are less irritating to the airway and less cardiotoxic minimal anesthetic plans are routine, and there is better understanding, education, and management of the psychosocial impact of the perioperative experience on the family and the child. 27, 28, 46

- Encouraging the use of succinylcholine in non-emergent clinical scenarios:
  - Succinylcholine is still an indispensable part of emergency pediatric anesthesia practice. However, many newer modifications to assist in airway management, and there is greater understanding of the serious and potentially life-threatening adverse reactions associated with succinylcholine. 3, 10, 12, 20, 42

- Encouraging vigorous education and adherence to pre-operative fasting guidelines:
  - The ASA Task Force on Preoperative Fasting has established clear guidelines meant to balance the risks of glycosylation and hyperglycemia with the risks of aspiration. Increased adherence to pediatric fasting guidelines can result in less red flags to airway anesthetic airway management and an improved patient and family perioperative experience. 8, 14, 36, 85

References:
42. http://www.extension.missouri.edu/mediainfo/6B37F1DFD0B44B844850F9313065C6F035F2926.aspx

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