473824 - CAPNOGRAPHY IN CHILDREN

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Introduction: The non-invasive measurement of expired carbon dioxide (CO₂) concentration (capnometry) and the monitoring of the CO₂ waveform (capnography) have been widely used in children since its inception three decades ago. It is now accepted as a standard preoperative monitor in children. The number of applications for this monitoring modality continues to increase. In this paper, we review the clinical applications of capnography in children, classify them and describe the levels of evidence supporting its use.

Methods: In September 2007, we performed a systematic search of the published and grey literature using the medical subject heading (MeSH) terms; capnography, capnometry, and end-tidal CO₂ monitoring. Final search results were limited publications where the primary intent was to describe or investigate the application of capnography in children (0-18 years). We critically reviewed the literature and assigned levels of evidence [1]. Using a recently described classification, we categorized the applications of capnography in children into 6 categories: Airway, Breathing, Circulation, Anesthetic Delivery Apparatus, Homeostasis, and Non- perioperative [2].

Results: The search generated a list of 44 different applications of capnography in children. The levels of evidence to support the various applications of capnography are variable, ranging from randomized controlled clinical trial to expert opinion.

Discussion: The use of capnography to confirm the initial placement and continuous presence of a tracheal tube and to confirm adequate ventilation during general anesthesia is recommended in children [3]. Although this recommendation is based on observational data from adults, and did not undergo rigorous clinical trials in children, it is based on a widely accepted physiological rationale [4]. The acceptability of capnography outside of anesthesia has been variable [5]. This may be due to the absence of substantive supporting evidence. Capnography is established as a useful monitor of respiration, (airway integrity and breathing), the presence of circulation, metabolism and gas delivery in anesthesia practice in children. It also has found application in several non-perioperative clinical settings

References: 1. <http://www.cebm.net/index>. 2. J Clin Monit Comput. 2007; 21: 341-4. 3. ASA Standards for Basic Anaesthesia Monitoring. 4. Crit Care 2004; 8:219-21 5. Anaesthesia 2003; 58: 476-9.