44578 - A SYSTEM OF CLASSIFICATION FOR THE CLINICAL USES OF CAPNOGRAPHY.

Naveen Eipe, Sunnybrook Health Sciences Centre, Toronto, ON, Canada;
JORDAN TARSHIS, SUNNYBROOK HOSPITAL;

A SYSTEM OF CLASSIFICATION FOR THE CLINICAL USES OF CAPNOGRAPHY.

INTRODUCTION: There are various applications and interpretations of capnography described in medical literature. There have however been no recent reviews that collate the clinical uses of capnography. The objectives of this review were to list all the described uses of capnography and classify them to aid teaching and simulation.

METHODS: We reviewed medical literature to list the uses of capnography reported till date. We performed an extensive Medline search using the medical subject heading (MeSH) words – “Capnography”, “Capnometry” and “End-tidal CO₂ monitoring”. Final search results were limited to English language studies published and those where the primary intent was to describe or investigate the use of capnography were considered for the present review. Categories were defined to classify these described uses of capnography.

RESULTS: In December 2006, Medline searches for “capnography”, “capnometry” and “end-tidal CO₂ monitoring” retrieved 944, 222 and 2168 citations respectively. From the titles and abstracts of these citations, 42 different clinical uses of capnography were determined. To the well known categories of Airway, Breathing and Circulation we added two other categories - Anesthetic Delivery Apparatus and Homeostasis to simplify the classification of the uses of capnography. An additional sixth category was added to describe the clinical uses outside the perioperative period.

DISCUSSION: Capnography has been in clinical practice for over three decades and become a standard of perioperative monitoring over the past decade. The interpretation of capnography has many implications in the patient monitoring. The uses have been described from correspondence, case reports and trials have been ever increasing. The trainee anesthetists find these uses extensive, often repetitive and at times bewildering. We therefore attempted to list all the relevant uses of capnography and then classify them into categories.

As the use of capnography becomes universal and the interpretation of abnormalities complex, this systematic review and classification will serve to collate the uses of capnography available till date. As a diagnostic algorithm in clinical practice; for both trainee and the experienced Anesthetist, this could aid the step by step detection (and analyses) of abnormalities in both in the waveforms and values of capnography. Further, as the data collected has been classified and presented in a simplified manner, this system of classification could serve as an aide-de-memoir in anesthesia education and simulation.

A SYSTEM OF CLASSIFICATION FOR THE CLINICAL USES OF CAPNOGRAPHY.

AIRWAY	BREATHING	CIRCULATION	ANESTHETIC DELIVERY APPARATUS	HOMEOSTASIS	NON PERIOPERATIVE
CONFIRMS TRACHEAL INTUBATION	DETECT SPONTANEOUS RESPIRATION AND EFFORTS	INDIRECT ESTIMATE OF CARDIAC OUTPUT	ADEQUACY OF MECHANICAL VENTILATION	MALIGNANT HYPERTHERMIA	INTUBATION
RULES OUT ESOPHAGEAL INTUBATION	ONSET OF NEUROMUSCULAR BLOCKADE-CURARISATION	CYANOTIC HEART DISEASE-CENTRAL SHUNTS	ADEQUATE FRESH GAS FLOW DURING SPONTANEOUS VENTILATION	CO ₂ RETENTION/NARCOSIS	ACID-BASE BALANCE
DIFFICULT AIRWAY MANEUVERS	WANING OF BLOCKADE	PULMONARY AIR EMBOLISM	ACCIDENTAL CIRCUIT DISCONNECTION	SEPSIS/ FEVER/ THYROTOXICOSIS	RESPIRATORY FAILURE
DETECT BLOCKED OR KINKED TRACHEAL TUBE	ADEQUACY OF REVERSAL OF NEUROMUSCULAR BLOCKADE	MEASURE OF ACID BASE BALANCE	BREATHING CIRCUIT LEAK	CO ₂ ABSORPTION (LAPAROSCOPIC)	APNEA/ RESPIRATORY MONITORING
DOUBLE LUMEN TUBE INSERTION	ADEQUACY OF ONE LUNG VENTILATION	ADEQUACY OF CPR	FUNCTIONAL ANALYSIS OF REBREATHING APPARATUS	HYPERMETABOLISM	NG TUBE INSERTION
FIBER OPTIC OR BLIND NASAL INTUBATION	DETECT DISTAL AIRWAY OBSTRUCTION-BRONCHOSPASM	MEASUREMENT OF CARDIAC OUTPUT	SODALIME EXHAUSTION	AWARENESS/ SEIZURES	NEONATAL INTENSIVE CARE AND VENTILATION
DURING CONSCIOUS SEDATION	DETECT COLLAPSE/ ATELECTASIS	HFJV/ ECMO/ IABP/ VAD	BREATHING VALVE MALFUNCTION	VENOUS THROMBO EMBOLISM	TREND CAPNOGRAM