



Office of the Chief Coroner  
26 Grenville Street  
Toronto, ON M7A 2G9  
Telephone: (416) 314-4000  
Facsimile: (416) 314-4030

bureau du coroner en chef  
26 rue Grenville  
Toronto, ON M7A 2G9  
Téléphone: (416) 314-4000  
Télécopieur: (416) 314-4030

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September 16, 2010

Mr. Stanley Mandarich  
Executive Director  
Canadian Anesthesiologists' Society  
1 Eglinton Avenue East  
Suite 208  
Toronto, ON  
M4P 3A1

Dear Mr. Mandarich:

**Re: Airway Exchange Catheters (AEC)/Endotracheal Ventilation Catheter (ETVC)**

The Office of the Chief Coroner of Ontario investigated the death of a healthy 22-year old male following surgery for a dentofacial deformity. He was a low anaesthetic risk (ASA Classification I) and underwent uneventful surgery and anaesthesia. Intermaxillary fixation was applied using elastic traction, and a nasogastric tube was inserted at the end of the procedure. He was awake and responding appropriately in the operating room. An Airway Exchange Catheter (AEC) was inserted through the endotracheal tube prior to the endotracheal tube being removed. He was stable, awake and breathing spontaneously prior to moving from the Operating Room. He was transferred to the Post Anaesthetic Care Unit (PACU) with the AEC attached to an oxygen tank. He arrived in the PACU and the AEC was attached to oxygen at a flow rate of 5 litres/min. Within 3 minutes of arriving at in the PACU, he began complaining of back pain and his condition rapidly deteriorated. He went into Cardiopulmonary Arrest and a prolonged resuscitation took place. 40 minutes into the arrest, a needle thoracostomy was performed for a tension pneumothorax. Circulation was restored, but he had suffered irreversible anoxic brain damage and died later in hospital.

Concerns arose regarding the use of the AEC, particularly related to the gas flow through the device. The egress of gases from the respiratory system was greatly reduced as a consequence of the mouth being "wired closed" and the nasogastric tube in the other nostril. One of the major complications with these devices is barotrauma resulting in pneumomediastinum and pneumothorax. To avoid this, it has been recommended that gas flow rate be as low as 1 – 2 litres/min through the AEC/ETVC or, when used for jet ventilation, inflating pressures should be less than 25 PSI. (*Baraka, A. Tension Pneumothorax Complicating Jet Ventilation via a Cook Airway Exchange Catheter. Anaesthesiology 1999; 91: pp 557-558 & Cooper, R.M. The use of an endotracheal ventilation catheter in the management of difficult extubations. Can J Anaesth. 1996/43:1/pp 90-93*).

Following our investigation and review of this death, the Office of the Chief Coroner of Ontario recommends that the Canadian Anaesthesiologists' Society inform its members of the risks of barotrauma associated with Airway Exchange Catheters and Endotracheal Ventilation Catheters and that maximum gas flow rates while using these devices should not exceed 1-2 litres/min or an inspiratory pressure of 25 PSI. We further recommend that the Canadian Anesthesiologists' Society consider developing guidelines for the use of these devices including maximum gas flow rates.

Thank you for your consideration of these recommendations.

Yours truly,



Andrew L. McCallum, MD, FRCPC  
Chief Coroner for Ontario