CORRESPONDENCE

Under pressure: an audit of airway device pressures

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To the Editor,

The endotracheal tube (ETT) and supraglottic airway (SGA) have found widespread use in the operating room (OR) but have also been linked to potential complications including trauma to the lips, teeth, tongue, and laryngeal structures.¹ More specifically, high cuff pressures (> 30 cm H₂O for ETT, > 60 cm H₂O for SGA) have been shown to be associated with sore throats, mucosal ulcers, tracheal stenosis, and vocal cord paralysis.² Studies have shown decreased incidence of these events using a cuff pressure manometer.^{3,4}

With the addition of a cuff pressure manometer to the list of monitors that should be immediately available in the operating room (OR), as outlined in the Canadian Anesthesiologists' Society (CAS) *Guidelines to the Practice of Anesthesia*,⁵ our department acquired two TRACOE REF 702 cuff pressure manometers (TRACOE medical GmbH, Nieder-Olm, Germany) that were kept in the main OR equipment storage area that supplies our 17 ORs. Subsequently, we performed a quality assurance audit to measure ETT and SGA cuff pressures and a survey of resident and staff anesthesiologists about their use of the cuff pressure manometer.

Following local Research Ethics Board review that this quality assurance initiative did not require formal ethics approval, we performed the aforementioned audit at two

academic tertiary healthcare centres between 11 April and 26 May 2016. All ORs were visited once a day and cuff pressures were measured when an ETT or SGA was in use in adults (> 18 yr) undergoing elective non-cardiac surgery. Cases with nitrous oxide or previous or current tracheal, laryngeal, or neck surgery were excluded. The anonymous survey regarding cuff measurement practices was concurrently completed in person by the staff, fellow, or resident involved in the case.

In all, 129 cuff measurements revealed that 33/113 (29%) of ETT and 8/14 (57%) of SGA pressures were higher than the recommended maximum (Figure). With the survey (Appendix available as Electronic Supplementary Material) being administered in person, 66 individual responses (100% response rate) were recorded. Palpation of the pilot balloon was the most popular method to determine appropriate ETT cuff pressure (44%, 29/66) compared with minimum occlusive pressure for SGA (44%, 29/66). Over half (52%, 34/66) of the respondents were aware of the presence of cuff pressure manometers at our institution; however, over three-quarters (76%, 50/66) reported only using the manometer $\leq$ once per month. A large majority of respondents (88%, 58/66) stated they would use a manometer more often if one were readily available in each OR instead of in the central equipment area adjacent to the OR.

In summary, high cuff pressures were present in a large proportion of patients with *in situ* ETT and SGA. More readily available access to a cuff manometer in each OR may enhance regular use of the cuff pressure monitoring.

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Figure Histogram of cuff pressure measurements recorded. Manufacturers suggest ETT cuff pressures < 30 cmH₂O and SGA < 60 cm H₂O. ETT = endotracheal tube; SGA = supraglottic airway

Conflicts of interest None declared.

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