Acute laryngeal injury

Little attention has been paid to the laryngeal consequences of endotracheal intubation. Acute laryngeal injury (ALgI) after intubation occurs at the mucosal interface of the endotracheal tube and posterior larynx and although not immediately manifest at extubation, can progress to mature fibrosis, restricted glottic mobility and clinically significant ventilatory impairment. A prospective observational study has shown that >50% of patients intubated >24 hours in an ICU develop ALgI. Strikingly, patients with AlgI manifest significantly worse subjective breathing at 12 weeks. Current ALgI treatments are largely surgical yet offer a marginal improvement in symptoms. In a study, Lowery et al. will examine the ability of a post-extubation medical regime (azithromycin and inhaled budesonide) to improve breathing 12 weeks after ALgI.

A prospective, single-center, double-blinded, randomized, control trial will be conducted at Vanderbilt University Medical Center. Participants will be recruited from adult patients in ICUs. Participants will undergo a bedside flexible nasolaryngoscopy for the identification of ALgI within 72 hours post-extubation. In addition, participants will be asked to complete peak expiratory flow measurements immediately postintubation. Patients found to have ALgI will be randomized to the placebo control or medical therapy group (azithromycin 250 mg and budesonide 0.5 mg for 14 days). Repeat peak expiratory flow, examination of the larynx and patient-reported Clinical COPD (chronic obstructive pulmonary disease) Questionnaire, Voice Handicap Index and 12-Item Short Form Health Survey questionnaires will be conducted at 12 weeks post-extubation. Consented patients will also have patient-specific, disease-specific and procedure-specific covariates abstracted from their medical record.

The Institutional Review Board (IRB) Committee of the Vanderbilt University Medical Center has approved this protocol (IRB #171066). The findings of the trial will be disseminated through peer-reviewed journals, national and international conferences.

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Lowery AS, Kimura K, Shinn J, Shannon C, Gelbard A. Early medical therapy for acute laryngeal injury (ALgI) following endotracheal intubation: a protocol for a prospective single-centre randomised controlled trial. BMJ Open. 2019 Jul 27;9(7):e027963. doi: 10.1136/bmjopen-2018-027963. PubMed PMID: 31352415.