475261 - ATOMISED LIDOCAINE FOR AIRWAY TOPICALISATION IN THE MORBIDLY OBESE: A RANDOMIZED CONTROLLED TRIAL COMPARING 1% VS. 2%

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Introduction: The aim of this prospective, double blinded randomized controlled trial is to compare 2 doses, 1% and 2%, of atomised lidocaine for the airway topicalisation of morbidly obese patients undergoing laparoscopic gastric bypass surgery. Atomised lidocaine for topicalisation of the airway in these patients has been previously shown to be effective, but at doses that can lead to toxic plasma levels of lidocaine(1). These two doses are being evaluated for patient tolerance to awake fibreoptic intubation, hemodynamic changes to intubation, endoscopist satisfaction to adequacy of topicalisation, as well as measurement of plasma lidocaine levels to ensure therapeutic levels of lidocaine without reaching toxic doses. The study is set for recruitment of 60 patients, as the minimum number of subjects required for an alpha level of 0.05 (one-tailed) and a power of 0.8 to detect a 40% difference between the groups is 30 in each group.

Methods: Following institutional ethics board approval, 15 patients have thus far been randomized to receive either 40 ml of lidocaine 1% (n=7) or 40 ml of lidocaine 2% (n=8) for subsequent atomization for airway topicalisation. The patients then had their airway topicalised and manipulated by a blinded endoscopist, while an objective blinded observer rated tolerance to awake fibreoptic intubation. Primary outcome measures include patient tolerance to bronchoscopy and intubation on a 3-point scale (0=no response, 1=some gagging, 2=intolerable), vital sign parameters, serial plasma lidocaine levels, and endoscopist's satisfaction with intubating conditions following topicalisation.

Results: Preliminary results demonstrate similar patient characteristics in the two groups, and no significant differences in hemodynamic parameters as well as in the time to intubation. Tolerance to insertion, score 0-2, of the Oviassapian airway (1% cohort: M = 0.43, SD = 0.89; 2% cohort: M = 0, SD = 0), bronchoscopy (1% cohort: M = 0.86, SD = 0.69; 2% cohort: M = 0.38, SD = 0.52), and tracheal tube insertion (1% cohort: M = 0.57, SD = 0.54; 2% cohort: M = 0.38, SD = 0.52) trended better in the lidocaine 2% group than the 1% group although these differences did not achieve significance with current statistical power (n = 15). The improvement in satisfaction scores of the bronchoscopist for the 2% group over the 1% group, however, approached significance (1% condition: M = 3.86, SD = 0.69; 2% condition: M = 4.50, SD = 5.34, t(13) = -2.03, p = 0.06). No patients have found bronchoscopy or intubation intolerable or required additional lidocaine.

Discussion: This study demonstrates the ease and effectiveness of airway topicalisation with atomised lidocaine. This technique has been previously described (2,3), and is effective in the morbidly obese (1). However, the optimal dose for safety while

maximizing effectiveness has not been clearly elucidated. Analysis of our preliminary data shows evidence of improved patient tolerance as well as improved satisfaction with the quality of intubation when using atomized 2% lidocaine in comparison to 1% lidocaine. The plasma lidocaine levels will be evaluated to assess adequate therapeutic plasma levels without incidence of plasma toxicity.

References: 1. Anesthesia, 2007 62: 984-988 2. Airway Management Principles and Practice. 1996: 159-82 3. Regional Anesthesia and Pain Med 2002 27: 180-92