TITLE: A COMPARISON OF NASAL SPRAY WITH COCAINE, LIDOCAINE/PHENYLEPHERINE, AND SALINE FOR NASAL INTUBATION

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INTRODUCTION: Although topical anesthesia with cocaine has been advocated before nasal intubation, its abuse potential makes investigation of alternative adjuncts to nasal intubation highly desirable. This study is designed to evaluate how nasal spray with 5% cocaine, a mixture of 4% lidocaine and 0.5% phenylepherine, or placebo (saline) affects hypertension, tachycardia and epistaxis following nasal intubation. This study differs from previous studies[1,2] in that the hemodynamic response was measured both after the nasotracheal tube was passed through the nose into the oropharynx and after tracheal intubation.

METHODS: Following human studies approval, 30 outpatients, ASA PS I & II undergoing 3rd molar extractions with general anesthesia, were randomly assigned to one of three groups in a double-blind manner. All patients were brought to the operating room unpremedicated, had an IV started and monitoring established. Heart rate (HR) was measured by EKG and blood pressure (BP) by automatic blood pressure cuff (Dynamapp). After baseline HR and BP, 0.5 mg atropine and 3 mg d-tubocurarine were given IV. Both nostrils were then sprayed equally using a total of 1.5cc of the assigned solution. Five minutes later, after 2 minutes of preoxygenation, anesthesia was induced with thiopental, 7 mg/kg. Succinylcholine, 2 mg/kg, was then given and ventilation controlled for 1 minute with 100% $O_2$ to prevent hypercarbia. A lubricated nasotracheal tube (6 mm for females, 7 mm for males) was then passed through the nose into the oropharynx. The patient was then ventilated through the tube with the other nostril and mouth occluded. After 1 minute, direct laryngoscopy was performed and the tube advanced into the trachea under direct vision. The presence and amount of epistaxis were recorded on a 0-3 scale: 0=no blood, 1=blood on the tube, 2=blood in the pharynx not impairing intubation, and 3=gross blood compromising intubation. Anesthesia was continued with 70% $N_2O$ + 30% $O_2$ for 5 minutes, at which time the study ended. Statistical analysis of mean BP (MAP) and HR was performed using analysis of variance techniques. Data on epistaxis were analyzed with a chi-square test. A P value $< 0.05$. was considered statistically significant.

RESULTS: At no time were there significant differences in HR between groups. HR increased in all groups following atropine and nasal spray but showed no significant changes otherwise. The changes in MAP are shown in the figure. There was no significant change in MAP after nasal spray (NS) or induction (TPL). One minute after passage of the tube through the nose into the oropharynx (NA), there was a significant rise in MAP in all groups. The maximum BP occurred 1 minute after laryngoscopy and tracheal intubation (INT) in all the groups. There were no significant differences in MAP between groups. The incidence and degree of epistaxis among the groups were also not significantly different.

DISCUSSION: Cocaine is widely used prior to nasal intubation for vasoconstriction and analgesia[3]. Because of the potential for the misappropriation and abuse of medical cocaine, continued use of this drug as an adjunct to nasal intubation demands proof of unique efficacy. This study demonstrates a significant cardiovascular response to passage of a nasotracheal tube through the nose into the oropharynx in all groups, and the presence of an analgesic (cocaine or lidocaine) did not attenuate this response. Peak MAP and HR occurred following laryngoscopy and intubation of the trachea, (stimuli which should be unaffected by nasal spray). In no patient was epistaxis great enough to impair intubation, delay surgery, or require treatment; thus no clinical value for a vasoconstrictor could be demonstrated. In addition, all patients complained about the noxious nature of the nasal spray. This study does not support the continued use of 5% cocaine or a mixture of 4% lidocaine and 0.5% phenylepherine as adjuncts to nasal intubation.

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