Title: Effect of Edrophonium on Heart Rate and Blood Pressure Responses to Tracheal Intubation

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Rapid induction of anesthesia with an intravenous thiobarbiturate followed by succinylcholine and endotracheal intubation is the most frequently used anesthetic induction technique. Tacchycardia and hypertension are well documented complications of laryngoscopy and tracheal intubation in patients undergoing the above anesthetic technique. This study was undertaken to evaluate the effects of a small dose of intravenously administered edrophonium (tensilon) in preventing the marked rise in heart rate and blood pressure during tracheal intubation.

Method: Forty A.S.A. class 1 or 2, patients were randomly divided into two groups. Group A patients received 5 mg edrophonium intravenously with succinylcholine and group B patients were given equivalent volume of saline with succinylcholine. This was accomplished in a double blind fashion. The groups were evenly distributed with regard to age, sex, weight and physical status. All patients were similarly premedicated with Innovar and atropine 60 min prior to anesthetic induction.

After routine monitoring all patients received 3 mg d-tubocurarine IV three minutes prior to induction. Anesthesia was induced with sodium thiopental (4-5 mg/kg) while patients were breathing 100% oxygen via mask. Succinylcholine 1.5 mg/kg was then administered intravenously with edrophonium or saline. Oral endotracheal intubation was performed after spraying the trachea with 2 mg/kg lidocaine (4%) in all patients. Average duration of laryngoscopy was similar in both groups. After tracheal intubation patients were given 100% oxygen for one minute and an inhalation anesthetic agent was added following that period.

Heart rate, systolic blood pressure and diastolic blood pressure were recorded prior to and 3 minutes after pretreatment with d-tubocurarine, one minute after thiopental, one minute after succinylcholine with edrophonium or with saline, at intubation, 30 seconds and 1 minute after tracheal intubation.

Results and Comments: Tracheal intubation resulted in a marked rise in heart rate, systolic blood pressure, diastolic blood pressure and rate-pressure product in group B patients whereas in group A patients, receiving edrophonium, there was no statistically significant rise in heart rate and only modest rise in rate-pressure product. (See Table). Two patients in group B had transient premature ventricular contractions but none in group A showed any dysrhythmia.

These data demonstrate that intravenous edrophonium (5 mg) administered one minute prior to tracheal intubation significantly prevents rise in heart rate and rate-pressure product.

	Group	HR	SBP	DBP	RPP
Pre Curare	A	72± 7	112±15	72± 9	8064
	B	68± 8	110±16	70±10	7480
Post Curare	A	70± 8	110±14	70± 8	7700
	B	68± 8	114±13	70±10	7752
1Min after thiopental	A	75± 9	104±10	68± 8	7800
	B	73±10	100± 9	68± 8	7300
1Min after succinyl-choline	A	74± 6	100± 9	70± 8	7400
	B	80± 8	103±12	70± 9	8240
At Intubation	A	83± 7	130±15*	86± 6*	11180*
	B	110±11*	140±18*	90± 5*	15400*#
30Sec after Intubation	A	80± 8	134±15*	88± 5*	10720*
	B	114±12*	142±17*	90± 7*	16188*#
1Min after Intubation	A	73± 7	130±12*	80± 5	9490
	B	108±10*	135±11*	86± 6*	14580*#

HR - Heart Rate/min
SBP - Systolic Blood Pressure (Torr)
DBP - Diastolic Blood Pressure (Torr)
RPP - Rate Pressure Product

Group A - patients received edrophonium + succinylcholine
Group B - patients received saline + succinylcholine

* $P < .05$ compared with post curare values
*# $P < .05$ compared with respective Group A values