44582 - INTERACTION BETWEEN MIVACURIUM POTENCY AND DURATION OF PROPOFOL- TIVA AT THE ADDUCTOR POLLICIS AND CORRUGATOR SPERCILLII

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INTRODUCTION: The potentiation of the potency of neuromuscular blocking agents by volatile anesthetics is well known. So far, it is mostly believed that there is no or very little potentiation of the action of neuromuscular blocking agents with intravenous anesthetic agents, such as propofol. In addition, little is known of the impact of the duration of general anesthesia on the potency or action of neuromuscular blocking agents. The purpose of this study was to determine the potency of mivacurium after two different durations of total intravenous anesthesia using propofol and remifentanyl infusions (propofol TIVA).

METHODS: After Ethics committee approval, this prospective, block randomized and double-blinded study investigates a total of 40 patients, separated in 2 groups of 20 patients. The potency of mivacurium was determined after either 5 minutes of TIVA propofol (Group 5 min), or after 20 minutes of TIVA propofol (Group 20 min). Each patient received four doses; an initial dose of 60 µg/kg and three increments of 30 µg/kg of mivacurium. The dose-response relation of mivacurium for the Adductor pollicis muscle (AP) and corrugator supercilii muscle (CS) was determined by using a cumulative dose-response technique (Vanlinthout et al.).

RESULTS: Preliminary results of 14 patients (Group 5 min; mean age 49 ± 17 yrs, mean weight 69 ± 15 kg) and 13 patients (Group 20 min; mean age 46 ± 20 yrs, mean weight 67 ± 13 kg) are presented. The potency determined as ED50 and ED95 for the AP, and ED50 for CS, was significantly higher after 20 min than after 5 min of propofol TIVA.

ED₅₀ and ED₉₅ (µg/kg) calculated for the adductor pollicis and the corrugator supercilii after 5 and 20 minutes of TIVA

	Adductor Pollicis		Corrugator Supercilii	
	5 min	20 min	5 min	20 min
ED ₅₀	77 ± 12*	49 ± 8	87 ± 23*	51 ± 9
ED ₉₅	151 ± 28*	106 ± 17	NA	NA

Data are presented as mean ± SD; * p<0.05

DISCUSSION: This is the first study to determine the potency of a neuromuscular blocking (NMB) agent after various durations of propofol TIVA. The potency is significantly increased when determined after 20 minutes of TIVA than 5 minutes. Due to its greater resistance, the applied mivacurium doses were not high enough to determine ED₉₅ at the CS. These findings have two impacts: the administration of a neuromuscular blocking agent at any given time should take into consideration the duration of previous anesthesia (TIVA). Future studies have to find out whether this potentiation is a central effect, due to general anesthesia itself, or a peripheral, drug-related effect.

REFERENCES: Vanlinthout, L. E., Booij, L. H., van Egmond, J., & Robertson, E. N. (1996). Br J Anaesth, 76, 389-95