Onset properties of mivacurium measured by mechanomyography depend on the twitch height of the adductor pollicis muscle.

Abstract:
INTRODUCTION: The influence of the twitch height of the adductor pollicis muscle during baseline measurements on the pharmacodynamic parameters of mivacurium was prospectively evaluated. PATIENTS AND METHODS: Fifty adult patients were anaesthetized with propofol and alfentanil. Neuromuscular function was monitored mechanomyographically by measuring the force of the adductor pollicis muscle following stimulation of the ulnar nerve. Following a stabilization period of 20 min, the individual twitch height of the adductor pollicis muscle was determined before a single bolus of mivacurium (75 microg kg-1) was administered. Patients were divided into two groups. The data of patients whose thumb adduction force was below the median value of all patients were the 'low force' group (9.1 +/- 1.4 N) and the data of all other patients were the 'high force' group (13.7 +/- 1.8 N). RESULTS: In the 'high force' group, maximum neuromuscular blockade of mivacurium was deeper (0.97 +/- 0.05 vs. 0.93 +/- 0.06; P< 0.05) and onset faster (2.9 +/- 1.1 min vs. 4.0 +/- 1.2 min; P< 0.05). Neuromuscular recovery did not differ between the groups. CONCLUSION: The different onset speeds reflect either different sensitivity to neuromuscular blocking agents with respect to patients' muscle power or a problem of the mechanomyographic measuring technique.