Recovery of neuromuscular function in different muscles

Definition

NMBD onset in the larynx and orbicularis oculi precedes the adductor pollicis by 1-2 mins. It appears that differences in regional blood flow may account for differences in NMBD onset and offset – thus, muscles such as the diaphragm, masseter, and laryngeal muscles (which receive relatively high amounts of blood flow) have both a faster onset and a faster recovery.

NBMD Recovery – Diaphragm, masseter, and laryngeal muscles, orbicularis oculi: rapid – Adductor pollicis: delayed

The orbicularis oculi accurately predicts intubating conditions. Maximal laryngeal relaxation occurs just as the adductor pollicis becomes noticeably weak.

Complete return of neuromuscular function should be achieved at the end of surgery unless post-operative ventilation is planned. The effectiveness of reversal agents depends directly of the degree of recovery present when they are given. Ideally, they should be given only when 4 twitches are visible, preferably measured at the adductor pollicis. The presence of spontaneous ventilation is not a sign of adequate neuromuscular recovery. The diaphragm recovers earlier than the much more sensitive upper airway muscles, such as the geniohyoid, which recovers, on average, at the same time as the adductor pollicis. To prevent upper airway obstruction after extubation, it is preferable to use the adductor pollicis to monitor recovery, instead of the more resistant muscles of the hypothenar eminence or those around the eye. Normal respiratory and upper airway function does not return to normal unless the train-of-four ratio at the adductor pollicis is 0.9 (using a quantitative twitch monitor) or more.