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Thyroid surgery, *IONM* and *sugammadex sodium* relationships: Benefits in *sugammadex sodium* using for *IONM*

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Statement of the Problem: One of the most important complications in thyroid surgery is vocal cord paralysis as a result of recurrent laryngeal nerve (RLN) injury. While unilateral injury of the nerve can be tolerated by the patients, bilateral nerve paralysis might results in as severe complications as death. The surgeon must use a strictly standardized intra operative neuro monitoring technique (*IONM*) to succeed a good, well-quality monitoring and safe-surgery in order to prevent injury to RLN and save its functions. But, the half-life of general anesthetic drugs with neuromuscular blockade effect which are used during operation are closely related to affectivity and reliability of *IONM*. We aimed to detect nerve conduction by using TOF-Guard neuromuscular transmission monitor and provide a more reliable *IONM* after administering *sugammadex sodium* (bridion) which antagonizes neuromuscular blockade of the anesthetic drug.

Methodology & Theoretical Orientation: 20 patients who underwent total thyroidectomy operation in our surgery department between January 2017 and March 2017 were involved into the study. All the patients were intubated following anesthesia induction with propofol 1.5 mg/kg; rocuronium 0.6 mg/kg; remifentanyl 0.25 microgram/kg/min and mechanically ventilated at Vc mode. Anesthesia maintenance was provided with remifentanyl of 0.25 microgram/min, sevoflurane of 0.8 mac, and air-o₂ combination of 4 lt/min. Following the intubation, the TOF-Guard neuromuscular transmission monitor was placed on left hand and TOF was measured and recorded. 100 mg of bridion was administered intravenously just before the surgeon start thyroid gland resection. Following bridion injection, TOF response at 1st, 2nd, 3rd and 4th minutes were measured and recorded. If the response was over 90%, then the surgeon was let to use neuromuscular monitoring device. Vocal cord examinations were done in all the patients by an ear-nose-throat specialist on the 1st post-operative day. Age, gender, recurrent laryngeal nerve conduction speed before and after excision, BMI, surgery time, hospital stay duration, nerve conduction response duration following drug injection and complications were analyzed.

Findings: None of the patients developed nerve-related complications. The mean age was 47.6±11.82 years and mean BMI was 28.745±3.20. The mean operation time was 52.65±5.51 min. There wasn't any significant difference in neither right nor left RLN monitoring values before and after surgery. Following the drug injection, the TOF guard nerve conduction response values were found 23.5±4.90; 69.5±6.86; 88±4.1 and 100, on 1st, 2nd, 3rd and 4th minutes, respectively.

Conclusion: The use of an anti-muscle relaxant drug and detecting the presence of nerve conduction with TOF-guard nerve monitor can provide a more reliable *IONM* and more safe surgery.

Biography

Turgut Donmez was graduated from Istanbul University Cerrahpasa Medical Faculty in 1997 and completed his Residency in General Surgery in 2003 in the same faculty hospital. He has been working at Lutfiye Nuri Burat State Hospital. He has expertise in laparoscopic and thyroid surgery.

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