

Sugammadex Reduces PONV

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Nausea and vomiting occur in a large number of disease conditions and as side effects of many drug treatments, including the use of analgesics and anesthesia in surgery [Horn CC. *Drug Discov Today Ther Strateg.* 2007]. Despite the introduction of many new antiemetic therapies, the incidence of postoperative nausea and vomiting (PONV) remains high, occurring in up to 30% of all surgical cases [Watcha M, White PF. *Anesthesiology.* 1992]. Onur Koyunco, Assistant Professor, Mustafa Kemal University, Hatay, Turkey, presented results of a randomized blinded clinical trial on the use of sugammadex vs neostigmine for reducing PONV.

Bradycardia, increased gastric secretion, and gastrointestinal motility are among the side effects caused by the cholinesterase inhibitor neostigmine. Sugammadex, a new neuromuscular antagonist, has a different mechanism of action. The primary outcome of this study was to determine whether sugammadex causes less PONV than neostigmine.

A total of 100 patients undergoing extremity surgery with a standardized general anesthetic were randomly assigned to receive neostigmine (70 µg/kg) and atropine (0.4 mg/mg neostigmine) or sugammadex (2 mg/kg) for neuromuscular antagonism at the end of anesthesia, when 4 twitches of train-of-four were visible with fade. PONV, recovery parameters, antiemetic consumption, and side effects were recorded.

Postoperative antiemetic and analgesic consumption was similar between the sugammadex and neostigmine groups. Extubation, first eye opening, and head lift times were shorter in patients who received sugammadex vs neostigmine ($P < .001$ for each). Postoperative heart rates were significantly lower in all of the measured times in patients who received neostigmine as opposed to sugammadex. There were no differences in nausea-vomiting scores at all measured times other than arrival in the postanesthesia care unit, when PONV was significantly lower ($P = .037$) in the sugammadex group as compared with the neostigmine group.

In patients who do not warrant low heart rates in the postoperative period, sugammadex may be the drug of choice for those at high risk for PONV.

Use of volatile anesthetics (vs propofol) for maintenance of anesthesia increases PONV in the early postoperative period [Apfel CC et al. *Br J Anaesth.* 2002]. Current antiemetics provide relief from only some sources of vomiting, with more limited benefits for the control of nausea. A significant need exists to identify

more effective antiemetic targets; current therapeutics have limitations in controlling certain sources of vomiting, and some patients do not respond to these medications [Horn CC. *Drug Discov Today Ther Strateg.* 2007].

Horn [*Drug Discov Today Ther Strateg.* 2007] reports an even greater necessity to develop anti-nausea medications. It is clear that available antiemetic drugs, although they inhibit emesis, are much less potent for controlling nausea.

PONV may increase patients' discomfort and raise costs (eg, antiemetics, readmission) and unwanted side effects (eg, pulmonary aspiration). Improving perioperative efficiency and throughput has become increasingly important in the modern practice of anesthesiology [White PF et al. *Anesth Analg.* 2007]. As costs assume an evermore important role in the practice of medicine, the ability to avoid such postoperative side effects as nausea and vomiting has become a high-priority issue.

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