

Management of robotic partial nephrectomy in a patient with myasthenia gravis: General anaesthesia sans neuromuscular blocking agent

Sir,

Administering safe general anaesthesia in patients with myasthenia gravis (MG) continues to remain a challenge. Patients with MG are best managed without using neuromuscular blocking agents (NMBAs) and early resumption of physical activity.^[1] Conducting robotic surgery in patients with MG is a challenge due to the requirement of prolonged anaesthetic to carry out the surgeries. Robotic surgeries fast track postoperative recovery and patient well-being.^[2] A 65-year-old male with symptomatic MG of grade IIB for the past 2 years presented incidentally with a left renal mass requiring partial nephrectomy. He also had hypertension and bronchial asthma, which were under control. The patient was on tab pyridostigmine 60 mg twice daily and tab azathioprine 50 mg once daily. He weighed 75 kg, and the body mass index was 24.9. The anaesthetic plan was to use inhalation anaesthesia to facilitate endotracheal intubation and allow mechanical ventilation; supplemental thoracic epidural anaesthesia to provide intraoperative analgesia and muscle relaxation. On arrival of the patient in the operating room, standard monitoring commenced. A 16 G epidural catheter was inserted at T10-T11 interspace, and epidural block was initiated. Bispectral index monitoring was used to monitor the anaesthetic depth. The patient was pre-oxygenated with 100% oxygen for 3–5 min. Basal train of four was recorded to be 100%. Induction of general anaesthesia was done with intravenous fentanyl (200 µg),

midazolam 2 mg and propofol. The patient was undergoing mechanically assisted ventilation with a fractional inspired oxygen concentration (FiO₂) of 1.0 and sevoflurane 2 to 3%; tracheal intubation with 8.5 mm endotracheal tube (ETT) was performed, without administering any NMBA. Assisted mechanical ventilation was continued using synchronised intermittent mandatory ventilation using 50% oxygen in air and sevoflurane. End-tidal CO₂ was maintained between 30 and 40 mmHg. Normothermia was maintained. Intra-operatively anaesthesia was maintained using sevoflurane and fentanyl. Epidural infusion of 8 mL of ropivacaine 0.2% was continued. Intra-operatively patient parameters were well maintained [Table 1]. The surgery lasted 140 min. The patient was extubated 30 min after awakening. Post-operatively, patient did well and was discharged on the third day.

Robotic-assisted surgeries pose challenges to the anaesthesiologists: longer duration of surgery, requirement of absolute immobilisation, remote access to the patient, possible intraoperative fluid and temperature imbalance. Advancements in the depth of anaesthesia monitoring and immaculately assisted ventilation on modern anaesthesia workstations have made it possible to practice such difficult anaesthesia. Several modalities such as regional blocks, general anaesthesia without NMBAs and general anaesthesia with minimal/no NMBAs have been successfully used.^[3,4] In the literature, anaesthesia for robotic surgery in patients with MG is sparse. Our report would encourage anaesthesiologists to adopt this technique without compromising patient safety and surgical comfort. Dexmedetomidine infusion has been shown to decrease the anaesthetic use.^[5] Total intravenous anaesthesia combined with thoracic epidural anaesthesia has successfully been used in patients with MG undergoing thymectomy.^[6] Supraglottic airway device has been used to administer minimal invasive anaesthesia.^[7] We present here the anaesthetic

Table 1: Parameters measured during surgery

Time in minutes	Basal	5	10	15	30	45	60	90	120	160
Hear rate (beats per minute)	68	80	70	71	69	68	67	70	69	85
Blood pressure (mmHg)	130/80	126/78	120/74	116/70	110/66	122/70	118/76	119/75	125/80	134/86
End-tidal carbon dioxide (mm Hg)	NA	35	37	39	40	41	39	38	39	36
Central venous pressure (cm H ₂ O)	6	10	9	11	10	12	11	10	10	11
Urine output	NA	90	100	75	80	75	90	100	120	100
Temperature (°C)	NA	36.5	36.3	36.3	36.2	36.1	36.0	35.9	35.9	36.1
Intraabdominal pressure (cm H ₂ O)	NA	13	12	12	12	13	12	13	12	12
Bispectral index	NA	50	46	45	48	45	45	47	48	47
Train of four	100%	100%	98%	97%	99%	97%	96%	98%	99%	00%

management without NMBA of a patient with MG, who additionally had comorbidities requiring robotic nephrectomy. This report is to highlight the feasibility of robotic surgeries in patients with MG.

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Conflicts of interest

There are no conflicts of interest.

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