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Gac Med Mex. 2016;152:204-5

Sedated non-intubated bilateral thoracoscopic sympathectomy R3-R4

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Abstract

Non-intubated thoracic surgery entails procedures performed through regional anesthesia method in awake or mildly sedated, spontaneously ventilating patients. This method represents advantages for the cardiovascular system, and reduces the orotracheal trauma, postoperative atelectasis, and pneumonia. It also possibly reduces costs. Other theoretical advantages are: easier acceptance of surgery, attenuated stress hormone and immune response, and possibly a better survival in oncological surgery. We show a 34-year-old woman with sever palmar-axillary hyperhidrosis. We performed the procedure with local anesthesia (ropivacaine 2 mg/ml) 5 ml in each wound trocar; 20 ml inside the thoracic cavity. The patient was mildly sedated with fentanyl and dexmedetomidine. The procedure was very simple, the patient was included in an outpatient program 90 minutes after the surgery. We conclude that sympathectomy with a non-intubated patient is safe and could be the beginning of other kinds of more complex procedures. (Gac Med Mex. 2016;152:204-5)

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KEY WORDS: *Sympathectomy. Non-intubated thoracic surgery. Local anesthesia.*

Introduction

Thoracic surgery with the patient not being intubated is carried out with local or epidural anesthesia, with the patient awake or moderately sedated, always with spontaneous ventilation[1]. In the decade of 1950, Buckingam reported a series of 607 patients undergoing thoracic surgery with epidural anesthesia; in the same epoch, Vischevski, in Russia, performed procedures with block of the phrenic and vagus nerves at the level of the neck and intercostal block with novocaine[2]. With the arrival of double-lumen orotracheal tube in 1959, this type of procedures fell into disuse until our days. The performance of the first lobectomy and segmentectomy with epidural and intercostal anesthesia[3], which has decreased the effect of cough with the intrathoracic vagus block, has been recently published.

The purposes of avoiding general anesthesia are the following: to reduce airway trauma that may be produced when double-lumen orotracheal tube is placed, to reduce postoperative risk for atelectasis and pneumonia, to maintain neuro-muscular, cardiac and respiratory systems in a physiological state, which represents prompt recovery from anesthesia and prevents side effects[4], as well as a reduction in the costs of the procedure[5,6].

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Date of modified version reception: 03-02-2015
Date of acceptance: 29-10-2015

Clinical case

The case is presented of a 37-year-old woman bearer of severe axillary-palmar hyperhidrosis not controlled with topical treatments. She had no associated comorbidities and, after being explained the type of surgical and anesthetic procedure, she signed the informed consent form.

In the surgery room, BP, HR, SaO_2, expired CO^2, ECG and O_2 at 3 l/min were monitored and the bispectral index (BIS) was placed. The four 5-mm ports at the third and fifth intercostal spaces of the mid- and posterior axillary line were infiltrated with ropivacaine 2 mg/ml, 5 ml on each port, and 10 more bilaterally instilled into the thoracic cavity. Sedation and analgesia was carried out with fentanyl 200 µg and dexmedetomidine infused at 0.5 and 1 µg/kg/h, with BIS maintained at a minimum of 80. Ondansentron 4 mg and ketoprofen 200 mg were administered, as well as 500 ml of Hartman solution for the entire procedure.

The surgery was performed with electrocoagulation of the sympathetic nerve roots at the R3-R4 level. To optimize visualization of the nerve and leave the insufflated lung below the field of vision, the optics device was placed onto the pulmonary apex in order for the sight of the nerve not to be obstructed. Under direct visualization, the upper trocar was removed and the patient was asked to take a deep, sustained breath; after correct re-expansion of the lung was observed, the second trocar was removed, with no thoracic drainage. The same maneuver was practiced at the contralateral side.

Once she tolerated the diet, the patient was discharged home, 90 min after surgery.

Discussion

We have performed the first bilateral thoracic sympathectomy by thoracoscopy in our setting, since, after exhaustive review of the literature, we found that the implementation of this type of anesthesia could generate many benefits. There are reports referring a decrease in the immune response and better myocardial oxygen consumption, with better ventricular function and a decrease in the risk for thrombotic events and arrhitmias[2]. By not requiring pulmonary collapse, the risk for postoperative atelectasia and pneumonia is decreased; in addition, there is no risk for hyperinflation of the lung that is ventilating or barotraumas.

With regard to the costs, a marked decrease has been observed depending on the reduction of operating room time that is spared, since no induction or waiting time to wake the patient are required, and there are important savings in anesthesia-inducing drugs, muscle relaxants and those required to revert them, no double-lumen tube is used, etc. Some reports even refer cost reductions of 30%[7].

Liu et al.[8] have reported on a series of 174 patients who have underwent bullectomies, atypical pulmonary resections and lobectomies, with shorter duration of the procedure and lowes use of antibiotics. They also reported lower concentrations of tumor necrosis factor a in the post-surgical bronchoalveolar lavage, which hypothetically opens benefits for patients with lung cancer that presumably could reduce local recurrence and tumor cells dissemination.

All these hypothetical benefits lead us to propose the idea of starting with simple procedures, as our case, to progressively gain experience, and once a learning curve is surpassed, start increasing the number and complexity of procedures.

Clearly, not all patients are ideal candidates for this procedure; as a matter of fact, in a group with good accumulated experience, Liu et al. report the need for intubation due to bleeding, adherences, hypercapnia, hypoxemia and insufficient pulmonary collapse.

We conclude that bilateral thoracic sympathectomy by thoracoscopy can be safely performed, warranting the desired result, and it should serve as an incentive to continue increasing the number of cases and their complexity.

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