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CLINICAL CASE

Clinical case series: Sedoanalgesia for thoracoscopic procedures

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Abstract Thoracoscopy is a procedure increasingly used because it is minimally invasive and assists in the diagnosis and treatment of different types of pathologies. The anaesthetic technique has evolved over time. In the beginning it was necessarily invasive, by selective or non-selective intubation; now it is non-invasive with appropriate regional anaesthesia and intravenous analgesia/sedation in selected cases. At the Hospital General de México ''Dr. Eduardo Liceaga'', in a significant proportion of cases thoracoscopy is currently done with the patient awake so we consider it necessary to report some of these cases along with the results obtained.

PALABRAS CLAVE
Anestesia;
Toracoscopia;
Sedación

Serie de casos clínicos: sedoanalgesia en pacientes para procedimientos toracoscópicos

Resumen La toracoscopia es un procedimiento cada vez más utilizado al ser poco invasivo y coadyuvar en el diagnóstico y tratamiento de diferentes tipos de patologías. La técnica anestésica ha evolucionado con el paso de tiempo de ser necesariamente invasiva, mediante la intubación selectiva o no selectiva, a ser no invasiva con una adecuada anestesia regional

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y analgesia/sedación intravenosa en casos seleccionados. En el Hospital General de México ''Dr. Eduardo Liceaga'' actualmente se realiza la toracoscopia con el paciente despierto en una proporción importante de casos por lo que consideramos necesario reportar algunos de estos casos acompañados de los resultados obtenidos.

Introduction

Less invasive surgical techniques are increasingly being used to avoid complications such as infection of the surgical wound, bleeding, dehiscence and pain. As these techniques have evolved, anaesthetic procedures have improved, providing greater comfort and intra-operative safety and the appropriate management of post-operative pain with fewer complications. The technique of thoracoscopy with sedoanalgesia and local infiltration was used almost exclusively to diagnose patients with exudative pleural effusion, but currently its use has expanded to many thoracoscopic procedures, such as bullectomy, sympathectomy, pericardial fenestration and partial pulmonary resection. Increasingly, more complex procedures are performed using this technique, such as lobectomies and thoracoscopic decortications.[1]

This procedure often provides diagnosis and management in various pathologies all at once, in addition to being more economical in comparison to other diagnostic and therapeutic tools.[2]

Although thoracoscopy has a low complication rate, the most common complications are haemorrhage, bronchopleural fistula, pneumothorax and pneumonia. Other, less frequent complications include subcutaneous emphysema, skin infection at the puncture site, hypotension during the procedure and atrial fibrillation.[3]

There are complications that may require changing the technique from an awake patient under sedoanalgesia plus local anaesthesia to anaesthesia in an intubated patient. These are described in Table 1.

Anaesthesia management decisions in thoracoscopy depend on whether the patient will be intubated or not and based on this, certain premises are maintained, which are listed in Table 2.

In a comparison of the advantages between management of intubated versus non-intubated patients, non-intubated patients present fewer complications, shorter postoperative thoracic drainage times and shorter hospital stays.

In 1999, eleven centres in the United Kingdom offered thoracoscopy services under local anaesthesia, increasing to 17 centres in May of 2004 and to 37 centres in 2009.[1] In the Pulmonary Department of Hospital General de México ''Dr. Eduardo Liceaga'', percentages have changed with regard to selective intubation, non-selective intubation and sedoanalgesia techniques. In January of 2016, 100% were performed with intubation (60% with non-selective intubation and 40% with selective intubation), a paradigm that changed in June of the same year, when 40% of thoracoscopies were performed with non-selective intubation, 30% with selective intubation and 30% with sedoanalgesia. In August 2016, 100% of thoracoscopies were performed under sedoanalgesia.

The purpose of using sedoanalgesia instead of general anaesthesia for the patient undergoing thoracoscopy was to reduce the probable effects of the anaesthetics used in general anaesthesia on blood pressure and on neuromuscular relaxation, both during administration of anaesthesia as well as post-anaesthesia. Furthermore, because patients do not need to be extubated, the duration of the anaesthesia is shorter.

Another objective is to implement a sedoanalgesia protocol that can be used in second or third-level centres where thoracic surgeries are performed.

Table 1 Reasons for changing non-intubated anaesthesia to intubated anaesthesia.[4]

• Excessive mediastinal movement.
• Persistent hypoxaemia.
• Pleural adhesions.
• Bleeding.
• Tachypnoea.
• Untreatable or unexpected cough.

Number of cases

6 cases of thoracoscopy were recorded in non-intubated patients under sedoanalgesia, performed in the pulmonary department during the months of July-August; 4 males and 2 females aged between 31 and 90 years of age. Their individual characteristics are detailed in Table 3.

Upon arriving in the operating room, they were subjected to continuous electrocardiographic monitoring, pulse oximetry, respiratory rate, blood pressure and body temperature. Continuous end-tidal carbon dioxide monitoring ($ETCO_2$) was performed by inserting a detector in the nasal cavity (Fig. 1). All patients admitted had a saturation of over 90%. Sedation monitoring was performed by bispectral index (BIS), maintaining a range of between 60 and 75 (deep sedation); with this degree of sedation the patients retained ventilatory automaticity, except for one case of desaturation ($SaO_2 < 90$), in which 2 min of manual ventilation was required. Upon achieving bispectral index values of around 60, the surgical team performed an intercostal nerve block

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