Awake fiberoptic intubation of a patient with amyotrophic lateral sclerosis: case report

Elif Bakı, Elif Buyukerkmen, Yüksel Ela, Serdar Kokulu, Remziye Sıvacı*

Department of Anesthesiology and Reanimation, Kocatepe University School of Medicine, Ali Çetinkaya Kampusü Afyonkarahisar, Afyon, Turkey

Abstract

Amyotrophic Lateral Sclerosis is a rapidly progressive disease from the fifth to sixth decades of life causing degeneration and death of the upper and lower motor neurons and no effective treatment. The diagnosis is dependent on the clinical presentation and consistent electrodiagnostic studies. Progressive denervation affects the muscles, causing muscular weakness and atrophy, when the ventilation muscles are affected death due to respiratory failure occurs within a few years. We present the case of a 54 years old, 180 cm height and 94 kg weight male patient with amyotrophic lateral sclerosis who underwent surgical treatment of thyroid cancer. Fiberoptic intubation was orally performed providing spontaneus breathing. Propofol was applied after passing vocal cords. Anesthesia was maintained with sevoflorane (%2) and a mixture of oxygen and air under volume controlled ventilation. Rocuronium was used 20 mg at the beginning of the surgery. At the end of surgery, he wasn't extubated and transferred to anesthesia intensive care unit. He was extubated after ten hours and he was awaked perfectly. The patient was discharged from intensive care unit after 24 hours and from hospital after ten days. We reported that amyotrophic lateral sclerosis patient with limited mouth opening who underwent thyroid surgery, using awake intubation.

Keywords: Amyotrophic lateral sclerosis, fiberoptic, awake intubation.

Introduction

Amyotrophic lateral sclerosis (ALS) is a progressive neurologic disease of motor ganglia in the anterior horn of the spinal cord and spinal pyramidal tracts. The onset is usually in the fourth decade of life and it is more common in men (1). Anesthesia procedures in patients with ALS often require certain special consideration (2). To our knowledge, it hasn't been reported on anesthesia procedures in awake fiberoptic intubated patient with ALS.

Case report

A 54 years old, 180 cm height and 94 kg weight is a male patient with ALS who underwent surgical treatment of thyroid cancer. At age 47 muscle weakness of the upper and lower extremites developed and the diagnosis of ALS was made. In personal history, he had been applied left anterior descending artery (LAD) stent eight years ago. He was awake, oriented and had muscle atrophy, weakness. He had no difficulty in speaking, but a little difficulty in swallowing. In preoperative evaluation, we saw that the patient interincisal distance was 5 mm and his mallampathy score was not assessed. Blood pressure was 150/80 mmHg and heart rate was 85/beat in patient. Routine laboratory data, electrocardiogram and chest graphy were normal. We planned to perform fiberoptic intubation since difficult intubation was kept in mind. In the operating room electrocardiogram, pulseoximetry and continuous blood pressure via a radial artery catheter were applied for monitoring. Laryngeal mask, nasopharyngeal and oropharyngeal airways were also prepared for difficult airway. Topical anesthesia was provided by xylocaine. For sedation and analgesia, midazolam 0.3 mg/kg and fentanyl 1 mcg/kg were given as bolus doses. Fiberoptic intubation was orally performed providing spontaneous breathing. Propofol were

* Corresponding author: Remziye Sivaci, MD.
Dumlupinar Mh. Turabi Cd. Tutuncu Apt.
B Blok NO: 2/1 D:9 03200 AFYON- TURKEY
Tel: + 90 272 2145511;
Fax: + 90 272 2158281
E-mail: remziyesivaci@gmail.com

Submitted 15 May 2012 / Accepted 22 July 2012

applied after passing vocal cords and started volume controlled ventilation. Anesthesia was maintained with sevoflorane 2 % oxygen 50 % in air. Rocuronium was used 20 mg at the beginning of the surgery and was not added during surgery. The intraoperative course was continued for four hours, uneventfully. At the end of surgery, he was not extubated and transferred to anesthesia intensive care unit. He was extubated after ten hours and awaked perfectly. He was aspirated regularly for his difficulty in swallowing by suction system. The patient was discharged from intensive care unit after 24 hours and from hospital after ten days.

Discussion

The presentation of amyotrophic lateral sclerosis, however, may be variable. ALS is usually lethal, rapidly progressive and neurodegenerative disease that occurs mainly after the age of 50. It is most common and severe motor neuron disease (3-4). Typically, there is a combination of upper and lower motor neuron signs as well as electrodiagnostic studies indicative of diffuse motor axonal injury. The diagnosis is dependent on the clinical presentation and consistent electrodiagnostic studies. The main cause of death in patients with ALS is respiratory failure (5). At the same time, there is no effective treatment and most important anesthesia management. They were applied general anesthesia and neuromuscular blockers in these patients since they can increase the weakness of the respiratory muscle (6). Prolonged paralysis and residual neuromuscular blockage can be complicated tracheal intubation. In anesthesia management, awake intubation and administration of small doses of neuromuscular blockers may be chosen (7). We didn't see any report about difficult intubation with ALS patients. Thus, we preferred awake fiberoptic intubation for our patient since we didn't want to use neuromuscular blockage agents for anesthesia induction and difficult intubation was thought for limited mouth opening. Although lots of techniques for fiberoptic intubation are known and used, there is an association of thoughts for some important points. First, patient cooperation and spontaneous breathing should be provided while fiberoptic intubation is being performed. Second, sufficient topical anesthesia must be kept (8). A lot of kinds of drugs can be used for patient comfort and cooperation for awake fiberoptic intubation. In our case, we performed fiberoptic intubation providing spontaneus breathing using topical anesthesia. Fentanyl and midazolam combination are preferred usually. We used fentanyl and midazolam for sedation during awake fiberoptic intubation. In summary, We presented the successful anesthetic management of an adult patient with ALS underwent thyroid surgery. We reported that ALS patient with limited mouth opening using awake intubation. We concluded that following a careful preoperative preparation, fiberoptic intubation can be performed providing spontaneous breathing in patients having restricted mouth opening.

Competing Interests

Authors declare no conflict of interest related to this study.

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