ONE LUNG VENTILATION PITFALS ON SEVERE THORACOLUMBAR SCOLIOSIS SURGERY

A. Silva¹, T. Martins¹, I. Furtado¹, M. Isidoro¹, F. Rodrigues², C. Oliveira¹

1. Hospital Garcia de Orta - Almada (Portugal), 2. Centro Hospitalar Vila Nova de Gaia - Espinho – Vila Nova de Gaia (Portugal)

Background

- Idiopathic Scoliosis has prevalence of 2-3% (severe cases < 0.1%);
- Intra-operative management of surgical correction is complex and may include anterior thoracotomy (with multi-level discectomy), extense posterior instrumentation, one lung ventilation and evoked potentials monitoring which usually dictates absence of deep muscle relaxation and inhalation anaesthetics on patients with severe restricted lung disease;
- We present this case because these weapons were utilized and to remind the importance of close post-operative monitorization upon high risk of respiratory complications.

Case Report

- Fifteen years old female, ASA III, severe thoracolumbar scoliosis (Cobb's angle of 120°) and restrictive lung disease;
- Proposed for antero-posterior scoliosis correction.

Induction

Total intravenous anaesthesia (TCI):
propofol (target 3 – 5 ug/ml)
remifentanyl (target 3 – 6 ug/ml)
ketamine (0,3 mg/kg/h)
Left double lumen tracheal tube with
right side exclusion (FO confirmation)

Right chest tube placement
Double lumen exchange for
reinforced ETT

Patient repositioning

Evoked potentials monitoring

No immediate complications

Transferred from ICU
To Paediatrics

No further complications

Intra
Operative

Thoracic approach

Posterior
approach

Emergence

Post
Operative

ICU – D2

Paediatrics
since D5

D13
Discharged

11 hours procedure

Surgical field – before correction

Severe bronchospasm

Bronchodilators
Steroid therapy
Pressure ventilation mode
Sevoflurane (MAC 0.5)
Deep muscle relaxation

Favourable outcome

Left side pleural perforation

Surgical glue applied

Left total pneumothorax
(dyspnoea; low SPO2)

Left chest tube placement

Favourable outcome

Surgical field – after correction

Discussion

- Severe restrictive lung disease and double lumen endotracheal tube in a patient without deep muscle relaxation probably contributed to bronchospasm.
- In spite surgical glue was applied, a total left pneumothorax occurred probably in the context of cough associated with pulmonary secretions.

Learning points

- Muscle relaxation and sevoflurane may be considered without compromise of evoked potentials monitoring if close communication with surgical team exists.
- Close monitorization on ICU is essential to establish early diagnosis and treatment of pneumothorax and other complications.

References:

Weiss HR, Negrini S et al. Indications for conservative management of scoliosis (guidelines). Scoliosis 2006. May 2006; 1:5.
Kulkarni AH, Ambareesha M. Scoliosis and Anaesthetic Considerations. Indian Journal of Anaesthesia 2007. 51(6):486-495.